ENERGY STAR® Battery Charger Stakeholder Meeting

Hosted by ICF Consulting

Concourse Level Meeting Room

1725 Eye Street NW, Washington, DC

Thursday, June 23, 2005

8:30 a.m. – 12:30 p.m.

Meeting Agenda

Welcome and Introductions

ENERGY STAR Overview

Session I: Why Develop a Battery Charger Specification?

- Summary of External Power Supply Specification and Battery Charging Systems Temporary Exclusion
- Preliminary Savings Analysis

Session II: Creating the New Specification

- Product Research to Date
- Approaches and Options for Battery Charger Specification
- Potential Issues
- Discussion of Other Key Elements of Specification
- Timeline & Next Steps

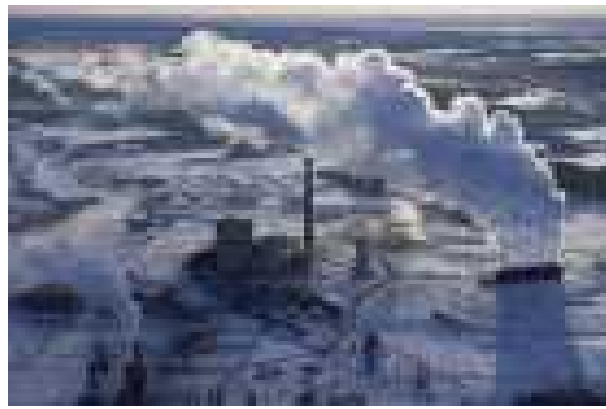
Adjourn

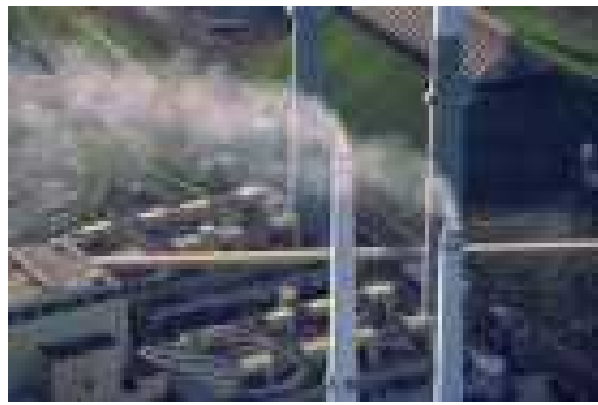
ENERGY STAR® Overview

The Environmental Impact of Electricity Use

In the United States, power plants are responsible for:

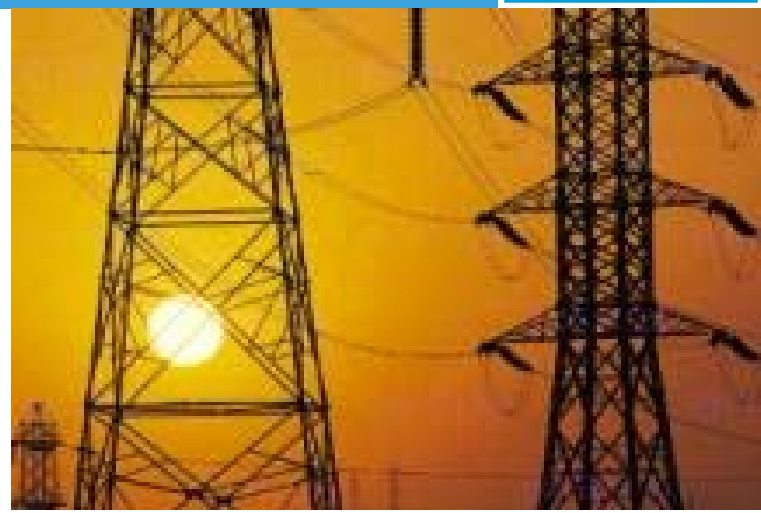
- 39% of all CO_2 (carbon dioxide) emissions
- 33% of all Hg (mercury) emissions
- 63% of all SO_2 (sulfur dioxide) emissions
- 22% of all NOx (Nitrogen oxide) emissions





Source: USEPA, USDOE (Energy Information Agency), 2002.

Benefits of Reducing Electricity Consumption



- Improve air quality
  - less smog, acid rain
- Help mitigate climate change
- Improve reliability of electricity grid; reduce the probability of power outages
- Improve the performance of products – build consumer loyalty

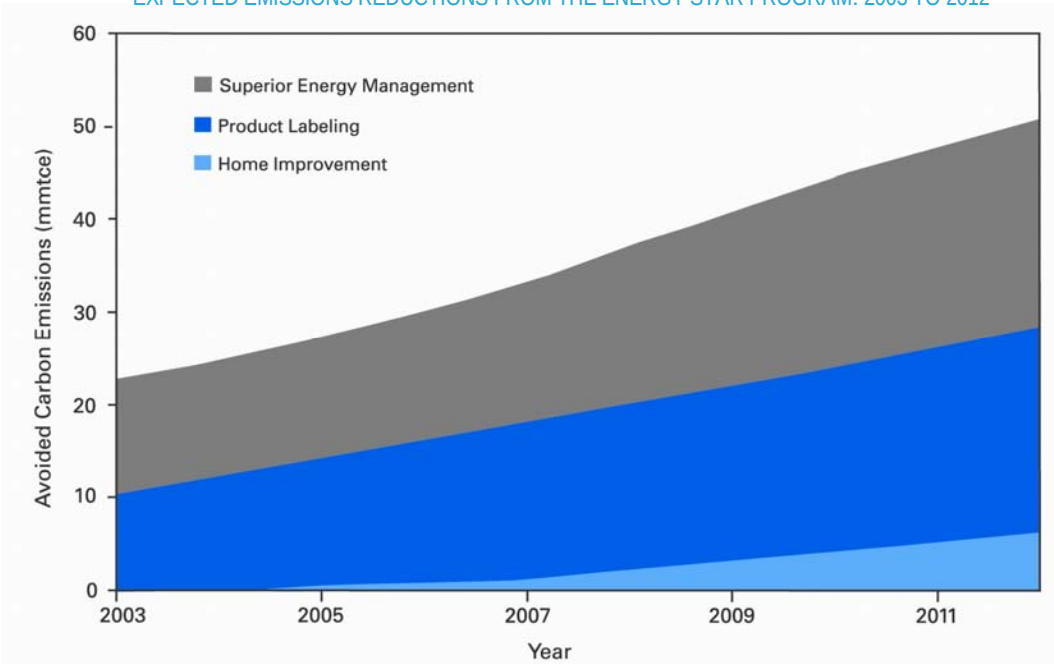
What Is ENERGY STAR?

- **Voluntary federal program** makes it easy to identify energy-efficient products, homes, and buildings

- Objective: Transform product markets
  - maximize **energy savings**
  - **reduce greenhouse gases** & mitigate climate change

- Products earn the ENERGY STAR mark by meeting strict **energy performance criteria**

EXPECTED EMISSIONS REDUCTIONS FROM THE ENERGY STAR PROGRAM: 2003 TO 2012



- Used in **Australia, Canada, EU, Japan, New Zealand, Taiwan**
  - Special case (China)

ENERGY STAR Accomplishments

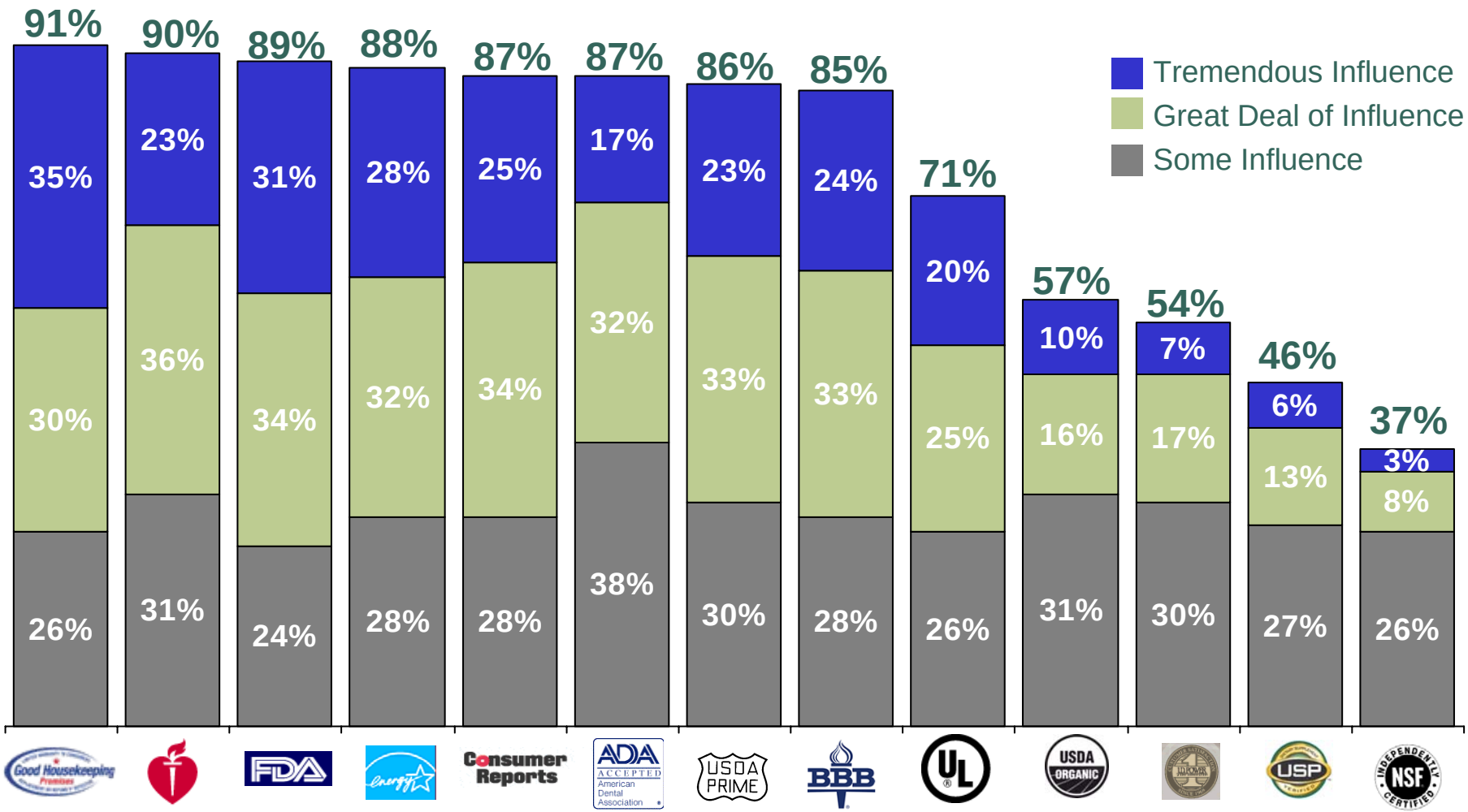
- **79** specifications in 7 broad product categories
- **1,400** manufacturing Partners
  - 550 retailers (21,000+ storefronts)
- **1 billion** products purchased by American consumers
- In 2004, ENERGY STAR:
  - saved **> $10 billion** on consumer energy bills
  - reduced GHG emissions equivalent to removing **20 million cars** from the road for 1 year
  - saved enough electricity to power **24 million homes** for 1 year

Growing Influence/Awareness of the ENERGY STAR Mark

- **Public awareness** of ENERGY STAR jumped to **64%** of US households in 2004
- **54%** of households were **favorably influenced** by the ENERGY STAR mark
- More than **70%** of households would **recommend an ENERGY STAR labeled product** to their friends
- **95%** of recent purchasers say they are likely to buy a product with the **ENERGY STAR mark in the future**

GOOD HOUSEKEEPING SEAL SURVEY

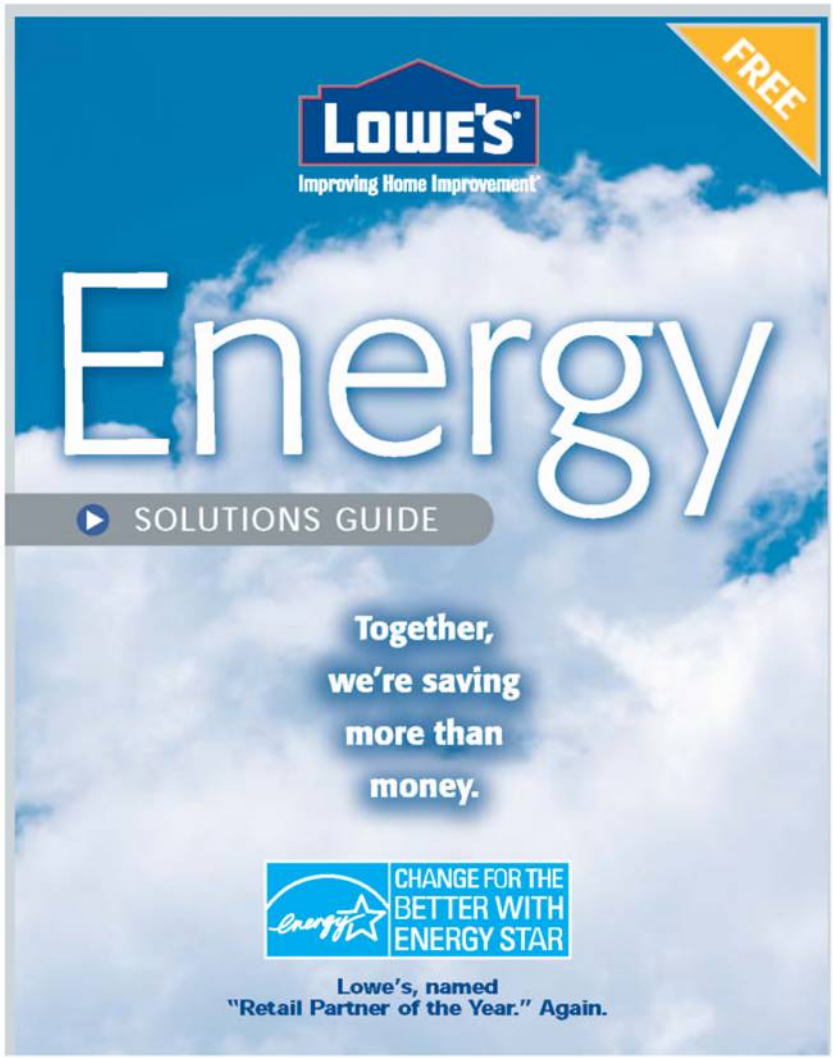
ENERGY STAR label ranks among the highest level of influence on product purchase among all consumer emblems, similar in ranking to the Good Housekeeping Seal and Consumer Reports.



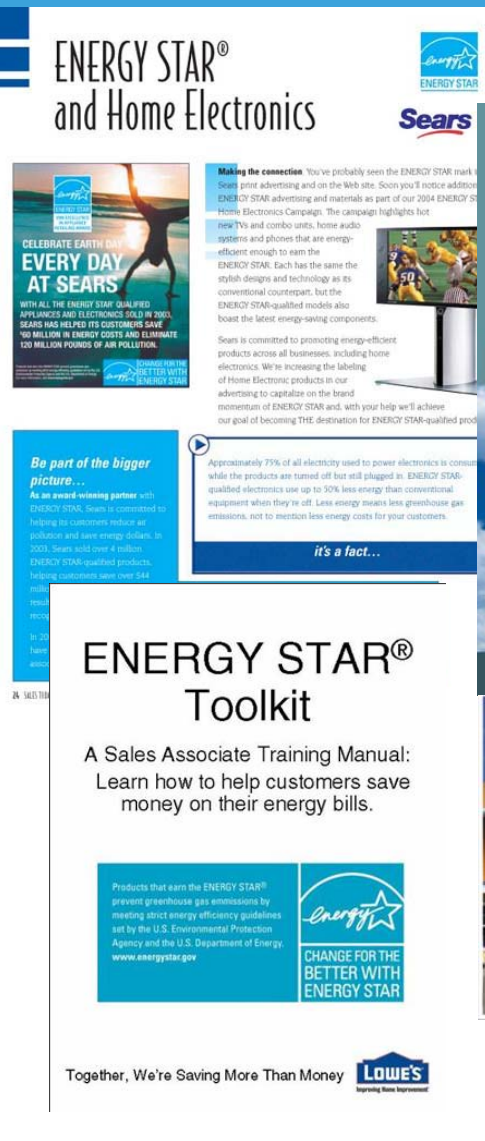
Source: Fairfield Research, May 2003

Major Retailers Now Marketing ENERGY STAR

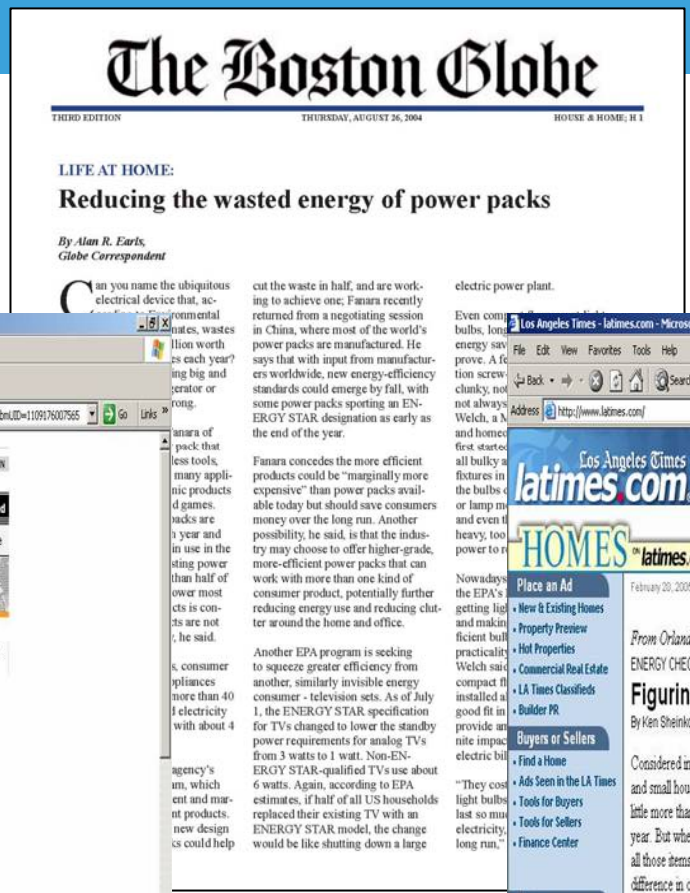
Major Retailers Now Marketing ENERGY STAR



Examples of Other Retail Efforts



Aggressive Media Outreach



The Boston Globe

THIRD EDITION THURSDAY, AUGUST 26, 2004 HOUSE & HOME; H 1

LIFE AT HOME:

Reducing the wasted energy of power packs

By Alan R. Earls,
Globe Correspondent

Can you name the ubiquitous electrical device that, ac- ronmental nates, wastes llion worth es each year? ing big and erator or rong.

anara of pack that less tools, many appli- nic products d games. acks are year and in use in the sting power than half of ower most cts is con- cts are not , he said.

s, consumer pliances more than 40 electricity with about 4

agency's m, which ent and mar- nt products. new design cs could help

cut the waste in half, and are working to achieve one; Fanara recently returned from a negotiating session in China, where most of the world's power packs are manufactured. He says that with input from manufacturers worldwide, new energy-efficiency standards could emerge by fall, with some power packs sporting an ENERGY STAR designation as early as the end of the year.

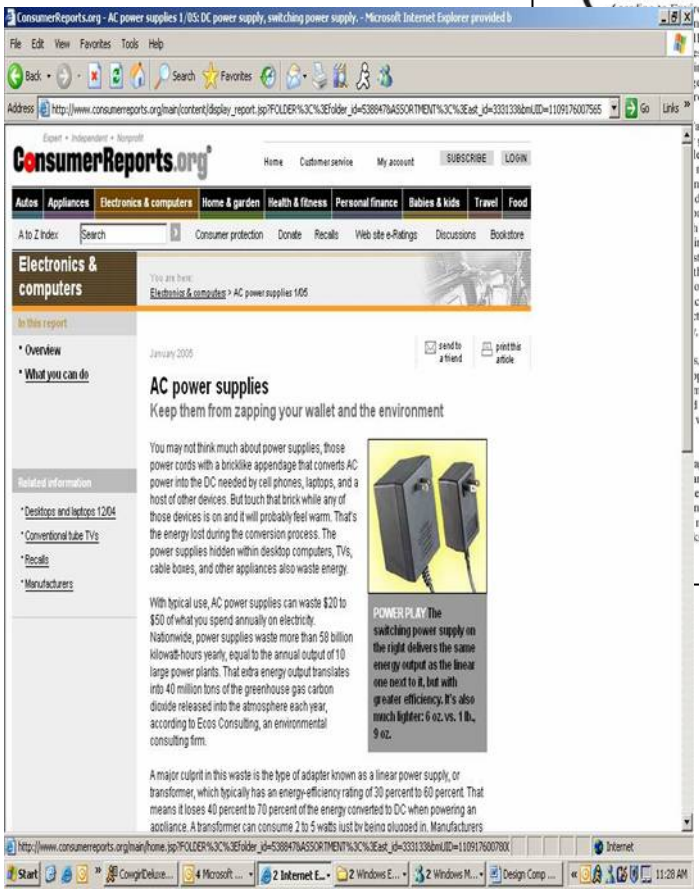
Fanara concedes the more efficient products could be "marginally more expensive" than power packs available today but should save consumers money over the long run. Another possibility, he said, is that the industry may choose to offer higher-grade, more-efficient power packs that can work with more than one kind of consumer product, potentially further reducing energy use and reducing clutter around the home and office.

Another EPA program is seeking to squeeze greater efficiency from another, similarly invisible energy consumer - television sets. As of July 1, the ENERGY STAR specification for TVs changed to lower the standby power requirements for analog TVs from 3 watts to 1 watt. Non-ENERGY STAR-qualified TVs use about 6 watts. Again, according to EPA estimates, if half of all US households replaced their existing TV with an ENERGY STAR model, the change would be like shutting down a large electric power plant.

Even comp bulbs, long energy sav prove. A fe tion screw- chunky, not not always Welch, a M and homec first startec all bulky a fixtures in the bulbs or lamp m and even t heavy, too power to r

Nowadays the EPA's getting ligh and makin ficient bul practicality Welch said compact fl installed a good fit in provide an nite impac electric bil

"They cost light bulbs last so mu electricity, long run,"



ConsumerReports.org - AC power supplies 1/05: DC power supply, switching power supply. - Microsoft Internet Explorer provided b

ConsumerReports.org

Autos | Appliances | Electronics & computers | Home & garden | Health & fitness | Personal finance | Babies & kids | Travel | Food

Electronics & computers

AC power supplies

Keep them from zapping your wallet and the environment

POWER PLAY The switching power supply on the right delivers the same energy output as the linear one next to it, but with greater efficiency. It's also much lighter: 6 oz. vs. 1 lb., 9 oz.

Los Angeles Times - latimes.com - Microsoft Internet Explorer provided by ICF Consulting Group, Inc.

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Figuring real cost of power adapters

By Ken Sheinkopf, Special to the Sentinel

Considered individually, efficient light bulbs and small household appliances may save little more than pocket change during the year. But when we add up the savings from all those items, they can make a big difference in our power bill.

Now becoming more common in the typical household are the power packs that come with electronics and appliances, particularly with cell phones, PDAs, digital cameras, MP3 players and camcorders.

Odds are good that you have one or more of these products in your home. In fact, the Environmental Protection Agency estimates

Growing Visibility

- Comparing November 2001 to November 2004
  - volume of **news articles** about ENERGY STAR **increased 86%**
  - **advertising** equivalency increased **146%**
  - **circulation** increased **117%**

- *Monthly* volume of news articles about ENERGY STAR has reached 1,400 articles, or a circulation of 140,000,000
  - November 2004 (example)
    - 1,125 articles
    - total circulation of 81,796,264
    - $415,055 in earned media value

Benefits of Membership in ENERGY STAR

- Enjoy **product differentiation** and increase market share
- Increase **credibility** with customers by positioning company as a **technology and environmental leader**
- Access **new customers**
- Leverage ENERGY STAR **campaigns**, **tools**, and **materials**

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Summary of the ENERGY STAR External Power Supply Specification

What Is an External Power Supply (EPS)?

Key Elements:

- Is designed to convert line voltage ac input into lower voltage ac or dc output
- Is sold with, or intended to be used with, a separate end-use product that constitutes the primary load
- Is contained in a separate physical enclosure from the end-use product

Note: Definition elements are an excerpt from the ENERGY STAR Program Requirements for Single Voltage External Ac-Dc and Ac-Ac Power Supplies

EPS Market & Savings Strategy

- Broad applications for end-use products
  - More than **1 billion shipped worldwide/year**
  - 5-10 in use in the average US home

- Power supply savings
  - ENERGY STAR's focus to date has been on *Standby* for consumer and office electronics
  - Power supplies efficiency address *Active Mode(s)* by **increasing efficiency in all modes** of operation
  - *Active mode* accounts for **nearly ¾** of all power supply energy use
  - Many power supplies are as little as **30 to 60% efficient**, but efficiencies of as high as 90% are achievable

EPS Specification Development

- Final specification released in December 2004
- Specification sets:
  - Minimum average efficiency for Active Mode
  - Maximum energy consumption in No-load condition
- Specification took effect in **January 2005**
- For more information visit:

  http://www.energystar.gov/powersuppliesdevelopment

EPS Inclusion in Future ENERGY STAR Specifications

- Beginning **July 1, 2006**, the ENERGY STAR telephony specification will require the use of an ENERGY STAR qualified EPS in **cordless telephones** and **answering machines**

- Similar EPS requirements will be added to all consumer and office electronics specifications, as appropriate

EPS Specification Levels

Current (Tier I) Specification Levels

Active Mode		No-load	
Nameplate Output Power (Pno)	Required Efficiency	Nameplate Output Power (Pno)	Required Power Consumption
≤ 1w >1-49w >49-250w	≥ 0.49*Pno ≥[0.09*Ln(Pno)]+0.49 ≥ 0.84	< 10 w ≥10-250 w	≤ 0.50 w ≤ 0.75 w

- **EPA intends to release Tier II levels**
  - Target effective date for Tier II is July 1, 2006
  - EPA is collecting data to finalize levels for Tier II

Other Elements of Specification

Testing / Reporting Requirements

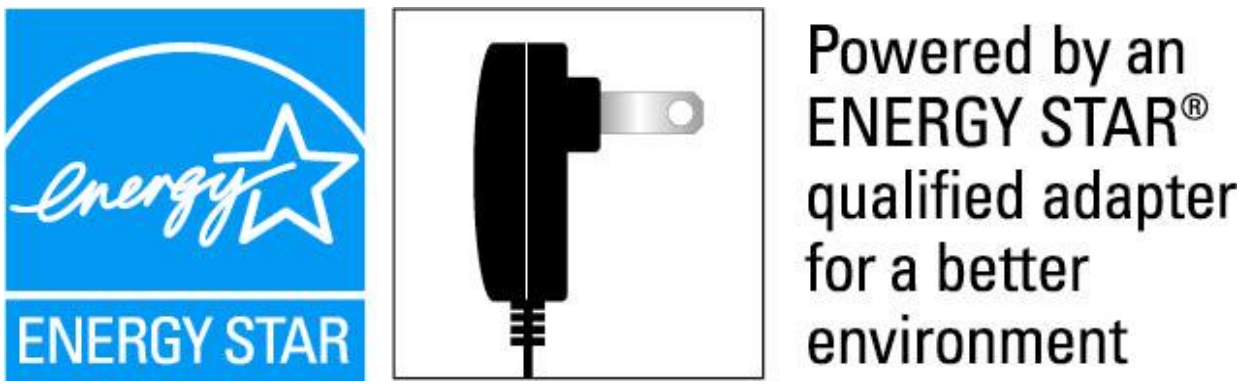
- Use ENERGY STAR test method to calculate efficiency
- Report data for three randomly chosen units of the same model
  - All three units must meet ENERGY STAR levels in order to qualify
- Where applicable, test at both 115 V at 60 Hz and 230 V at 50 Hz

Labeling Requirements

- No mark on power supply unit itself
- ENERGY STAR mark required on Internet site and product packaging; encouraged on product literature and advertising
- Follow **International Efficiency Marking Protocol** as of January 1, 2006

ENERGY STAR Partnership Opportunity for Finished Product Manufacturers

- Recruiting Finished Product Manufacturers
  - Incorporate ENERGY STAR qualified EPSs into finished product designs
  - Use new ENERGY STAR graphic to promote products using ENERGY STAR qualified EPSs



ENERGY STAR EPS Partners

- Astec (Emerson)
- Ault Incorporated
- Celetronix USA Inc.
- Delta Electronics Inc.
- FRIWO Mobile Power GmbH
- GlobTek Inc
- Hipro Electronics
- Jerome Industries
- Leader Electronics, Inc.
- Li Shin International Enterprise Corporation
- Lite-On Technology Corporation
- Phihong USA Corporation
- Salcomp (ShenZhen) Co. Ltd.

Battery Chargers Temporarily Excluded from EPS Specification

ENERGY STAR® Program Requirements for Single Voltage External Ac-Dc and Ac-Ac Power Supplies

Eligibility Criteria

Below is the product specification for ENERGY STAR qualified single voltage external ac-dc and ac-ac power supplies. A product must meet all of the identified criteria if it is to be qualified as ENERGY STAR by its external power supply manufacturer.

1) **Definitions**: The goal of this ENERGY STAR external power supply specification is to recognize those models with an efficient ac-dc or ac-ac conversion process. Consistent with this goal and the test methodology, as described in Section 4, EPA has prepared detailed definitions of single voltage external ac-dc and ac-ac power supplies and other related terms as relevant to ENERGY STAR.

Please note the following products are temporarily excluded from this specification as outlined below:

- Those power supplies with battery charging functions intended to recharge batteries that power: 1) flashlights; or 2) end-use products whose *principal output* is mechanical motion, the movement of air, or the production of heat (e.g., power tools and rechargeable vacuums); or 3) detachable batteries for use in the end-use products described in #1 and 2 above. (While it is difficult to precisely delineate and categorize products in today's converging marketplace, in general this exclusion applies to power tools and household appliances that produce heat, light, or motion. It does not affect computer and consumer electronics, such as laptops, digital cameras, monitors, CD players, cell phones, and cordless phones. Further, EPA recognizes that external power

Why a Battery Charger Exclusion?

- Temporary exclusion developed for battery charger “systems”.

- Separate test procedure and specification required for battery charger systems
  - Intended to mirror how product is used

Examples of Excluded Products

Exclusion covers battery charging "systems" typically found in **household appliances** and **power tools**

Sample Products:

- **Personal Care Products**
  - Beard/Mustache Trimmers
  - Curling Irons
  - Hair Clippers
  - Shaver/Trimmer Combos
  - Toothbrushes/Plaque Removers
- **Floor Care Products**
  - Electric Sweepers
  - Vacuums
  - Hand-held Vacuums

- **Kitchen Appliances**
  - Can Openers
  - Hand Mixers
  - Hand Blenders
  - Power Knives
- **Power tools**
  - Screwdrivers
  - Drills
  - Rotary Tools
  - Hedge Trimmers

Battery Charger Specification Development

- Temporary exclusion expires **December 31, 2005**

- If no specification is finalized, these battery charging systems **will be covered under the current EPS specification**

Preliminary Savings Analysis

Energy Savings

Power Tools (17.5 Million Units in 2004)

Average unit savings of ~18 kWh/yr

Potential Savings in 2010: ~1 Billion kWh/yr

Cordless Vacuums (18 Million Units in 2010)

Average unit savings of ~ 7 kWh/yr

Potential Savings in 2010: ~125 Million kWh/yr

Opportunities for Energy Savings

- Tailor power use to power need
  - C/6 chargers
    - C rate
    - Variable charge rate
  - Slowest chargers
    - C rate
  - Fast chargers

Opportunities for Energy Savings *cont'd*

- Reduce power conversion losses
  - Slower chargers
    - 29% to 62% efficiency for charging (average ~44%)
    - 29% to 58% efficiency for maintenance mode (average ~41%)
  - Fast chargers
    - 46% to 87% efficiency for charging (average over 70%)
    - 13% to 52% efficiency for maintenance mode (average ~ 30%)
- Reduce standby losses
  - Battery presence switch
    - Power tool charger ~0 W

Product Research to Date

Battery Charging Efficiency Specification

- Under development – Spring 2005
- Would cover many products not currently covered by EPS specification
  - Floor care
  - Personal hygiene (e.g., shavers and toothbrushes)
  - Yard care
  - Power tools
  - Small kitchen appliances

Types of Products Examined

Sample Products:

- **Personal Care Products**
  - Beard/Mustache Trimmers
  - Hair Clippers
  - Shaver/Trimmer Combos
  - Toothbrushes/Plaque Removers
- **Floor Care Products**
  - Electric Sweepers
  - Vacuums
  - Hand-held Vacuums
  - Robotic Vacuums

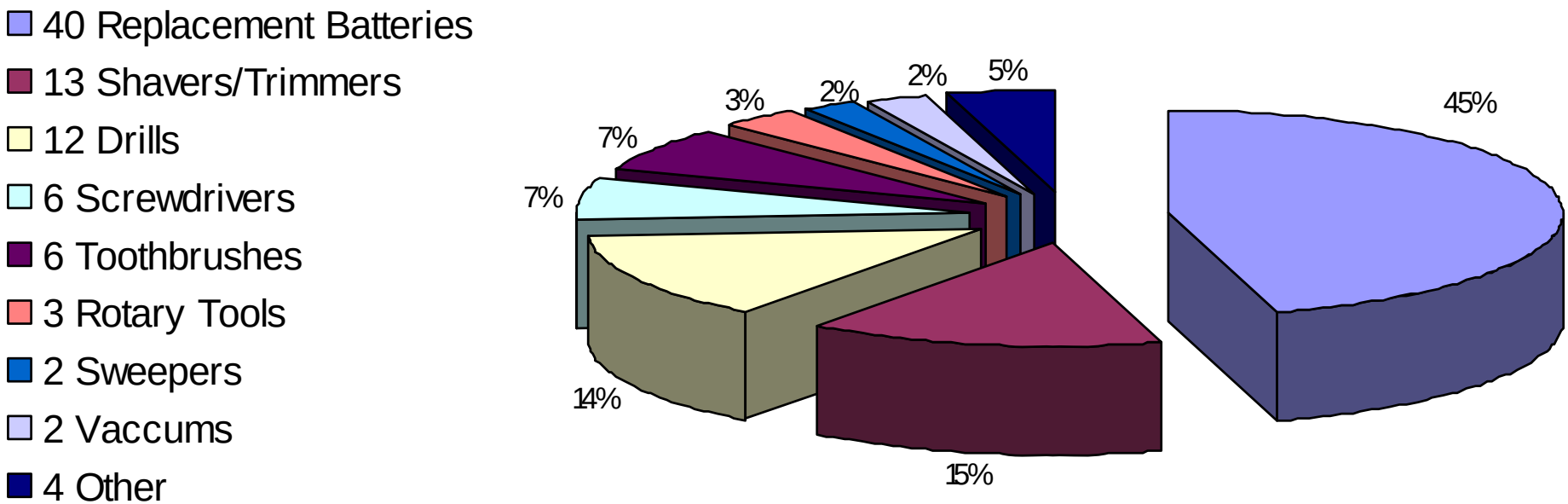
- **Kitchen Appliances**
  - Hand Mixers

- **Power tools**
  - Contractor Packs
  - Screwdrivers
  - Drills
  - Rotary Tools
  - Hedge Trimmers
  - Li-Ion

Products Tested

- **Manufacturers voluntarily submitted products for testing**
- **19+ Manufacturers Represented**
- **88 products tested, for a variety of device types**

Device Types Tested

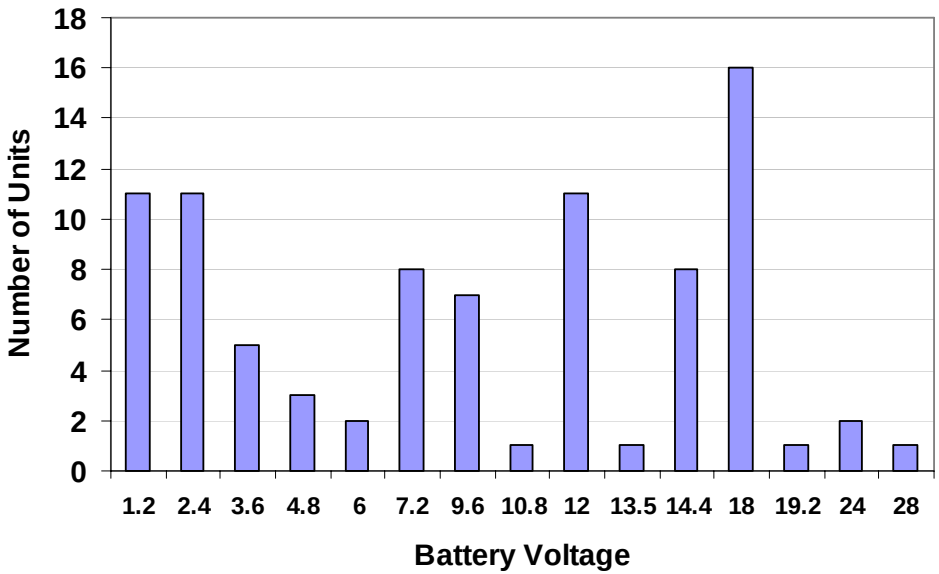


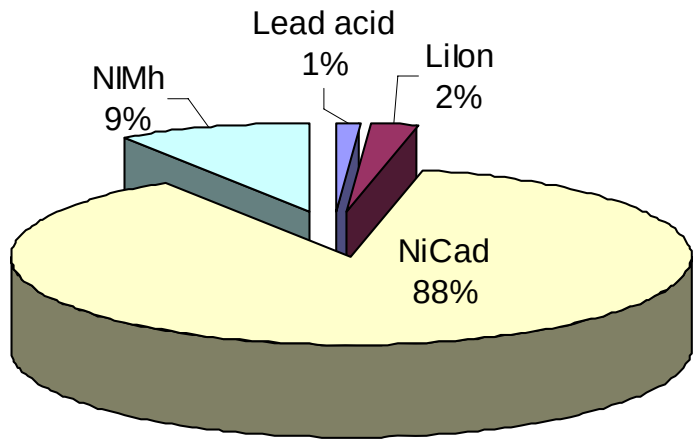
*** Other: ATV Battery, Cordless Mixer, Hedge Trimmer, Power Quality Analyzer**

Battery Characteristics

- **Product voltages ranged from 1.2V to 28V**
- **Average voltage = 9.8 V, Median voltage = 9.6 V**
- **Battery chemistries tested: NiCad, NiMh, Li-Ion and Lead Acid**
- **NiCads currently dominate the market for tested products**

Batteries Tested





Market Coverage

- **Over 17.8 million shipments of shavers and trimmers in 2003***
- **Over 10.2 million shipments of electric tooth care products in 2003***
- **25.6 million battery packs for power tools are expected to ship in 2005**

- **Data collected for products from all 6 top selling shaver/trimmer manufacturers**
- **Data collected for products from 4 of the top 5 selling power tool manufacturers**

***Not exclusively cordless models**

Sources: 51st Annual Report, Statistical Review, Appliance Publications; Power Packs for Portable Electronic Devices, Fifth Edition, Darnell Group; 26th Annual Portrait of the US Appliance Industry, Appliance Publications ; The Freedonia Group

Future Markets

- **Growing market for cordless products - as battery technology improves, more products will move from corded to cordless**
- **Power tool battery packs expected to have a compound annual growth rate of 4.4% over the next 5 years**

- **NiCads currently dominate the market because of their relatively low price**
- **Li-Ion entering the power tool market**
- **Li-Ion already popular for consumer electronics (e.g., mobile phones, PDAs, notebook computers) where price is less of a barrier**

Source: Power Packs for Portable Electronic Devices, Fifth Edition, Darnell Group

Ongoing Data Collection

- **Current data gives adequate coverage for power tools and personal care products (i.e. shavers/trimmers, toothbrushes)**
- **Additional test data desired for kitchen appliances and floor care products**
- **Product testing and data collection will continue through the creation of the final specification**

- **Please continue to volunteer products for testing to ensure an accurate representation of current battery charger products!**

Principles Behind Specification

- Keep specification simple
- Use actual energy consumption of battery chargers
  - User/product scenarios
  - Active
  - Battery maintenance
  - Standby (no load)
- Complex systems: let metering data drive decisions
  - smart chargers
  - C/6 chargers

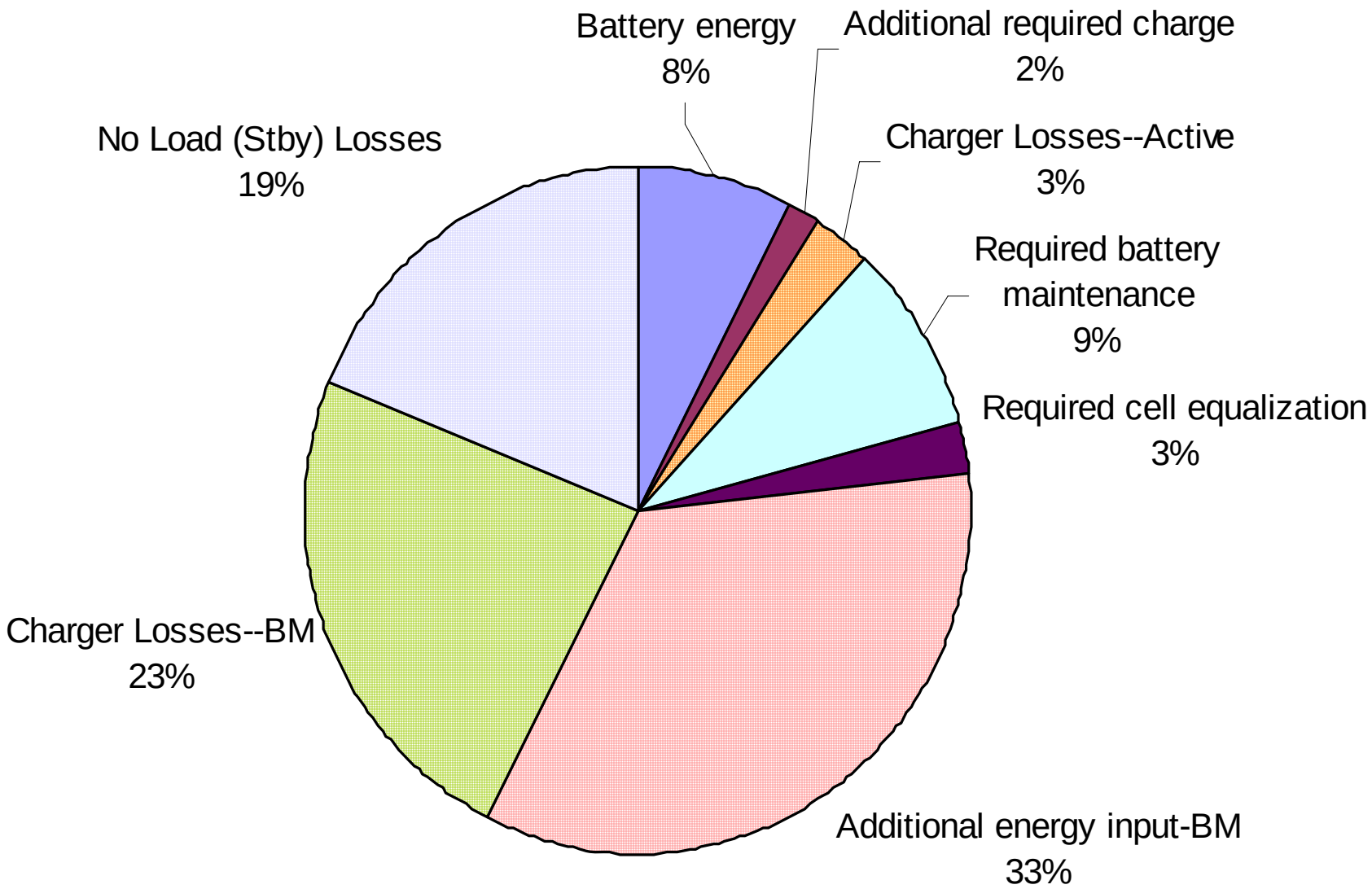
Metering Method

- Equipment
  - Yokogawa 1600WT
    - High precision
    - Low measurement range
    - High frequency
- Metering Period
  - 24 hour test
  - Capture all modes
- AC/ DC Measurement
  - Observe conversion efficiency in various modes
- AC only Measurement
  - Focused on capturing energy use

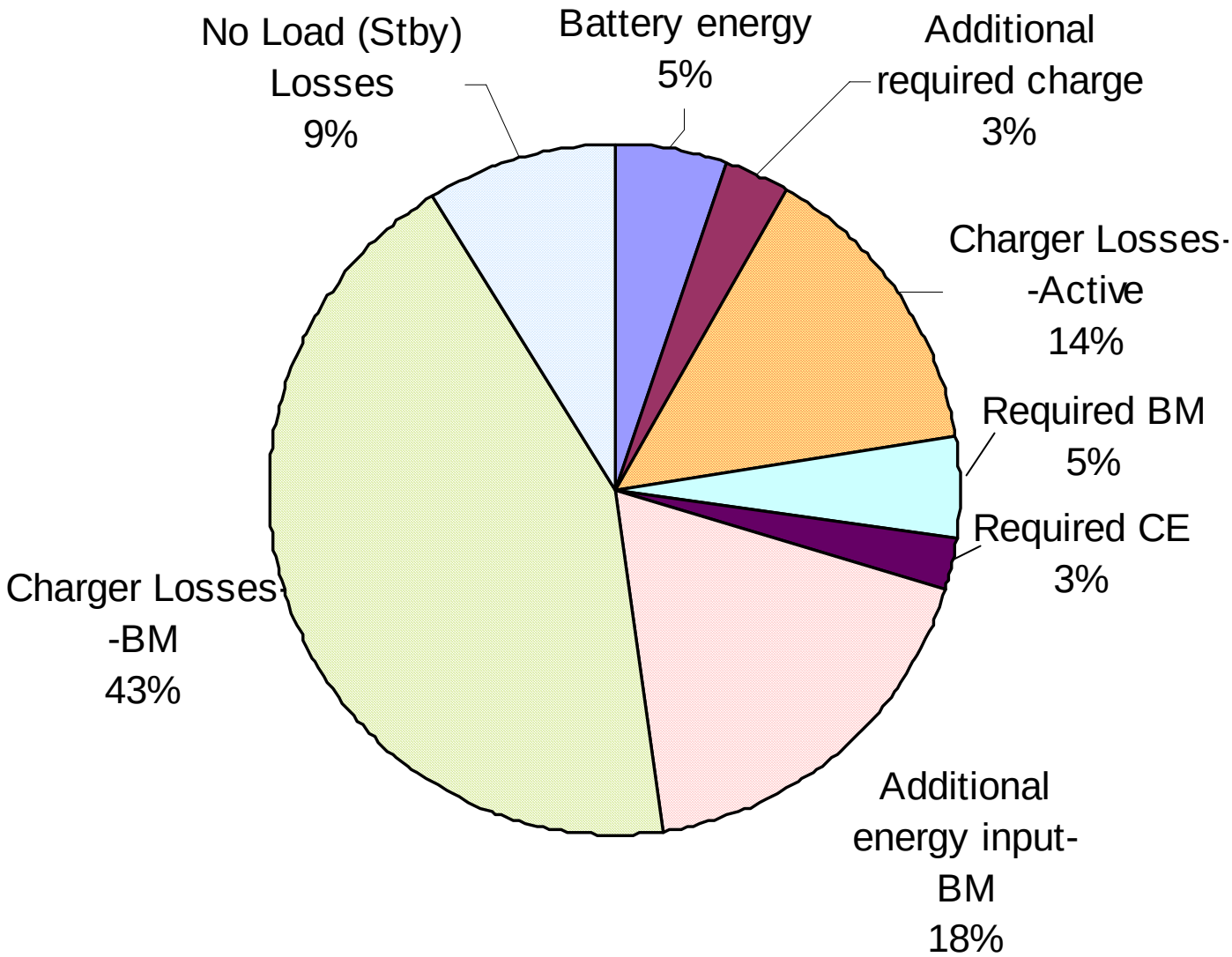
Energy Use in Battery Systems

- Battery charging (directly useful energy)
- Additional needed to charge battery (Coulombic efficiency)
- Cell equalization
- Self discharge balance, mainly NmH, NiCad (battery maintenance)
- Losses in power conversion
- Standby
  - Used in sensing circuits

Battery Maintenance and Standby Dominant for a Fast Charger



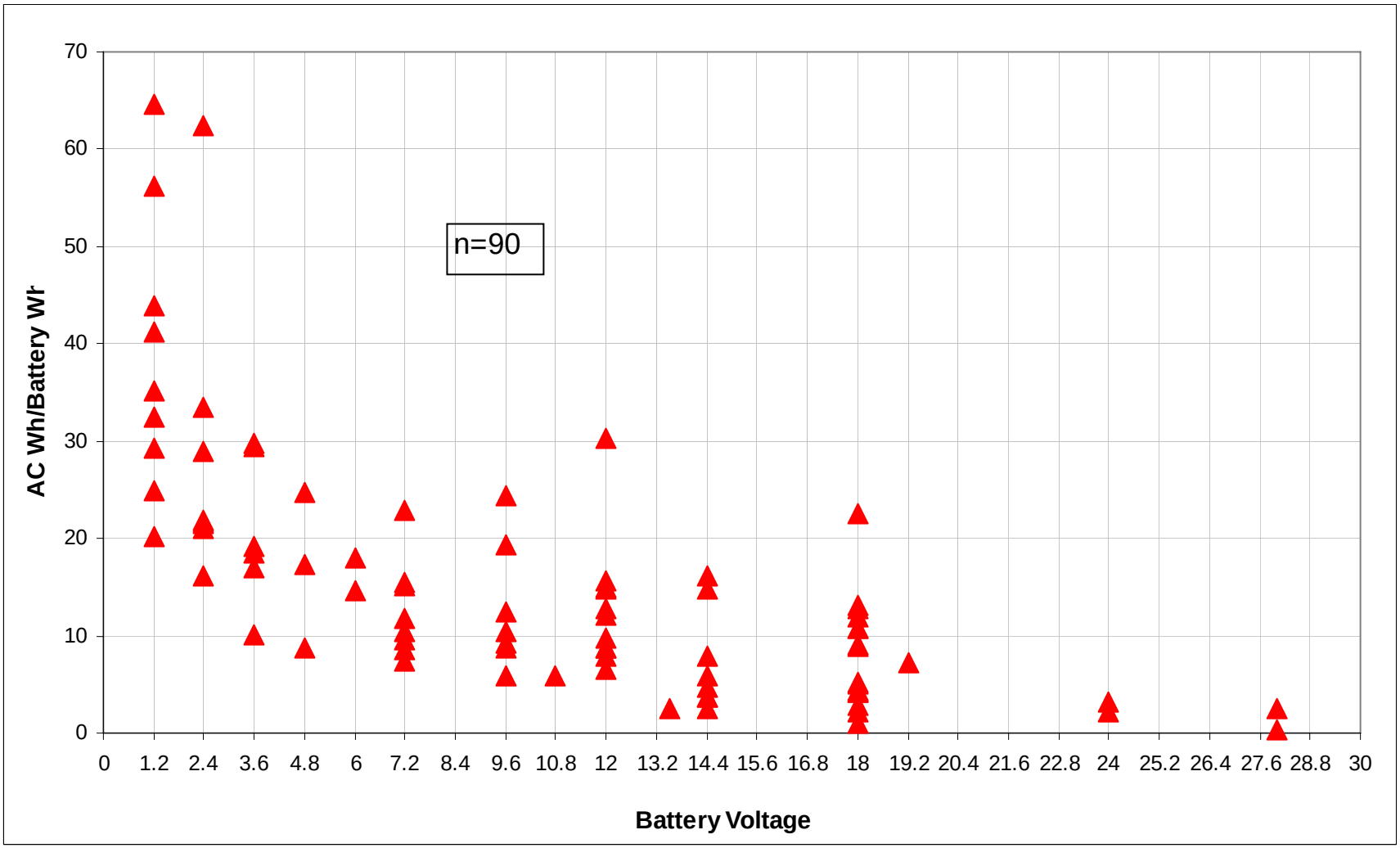
Non-Active Losses Also Significant for Slow Chargers



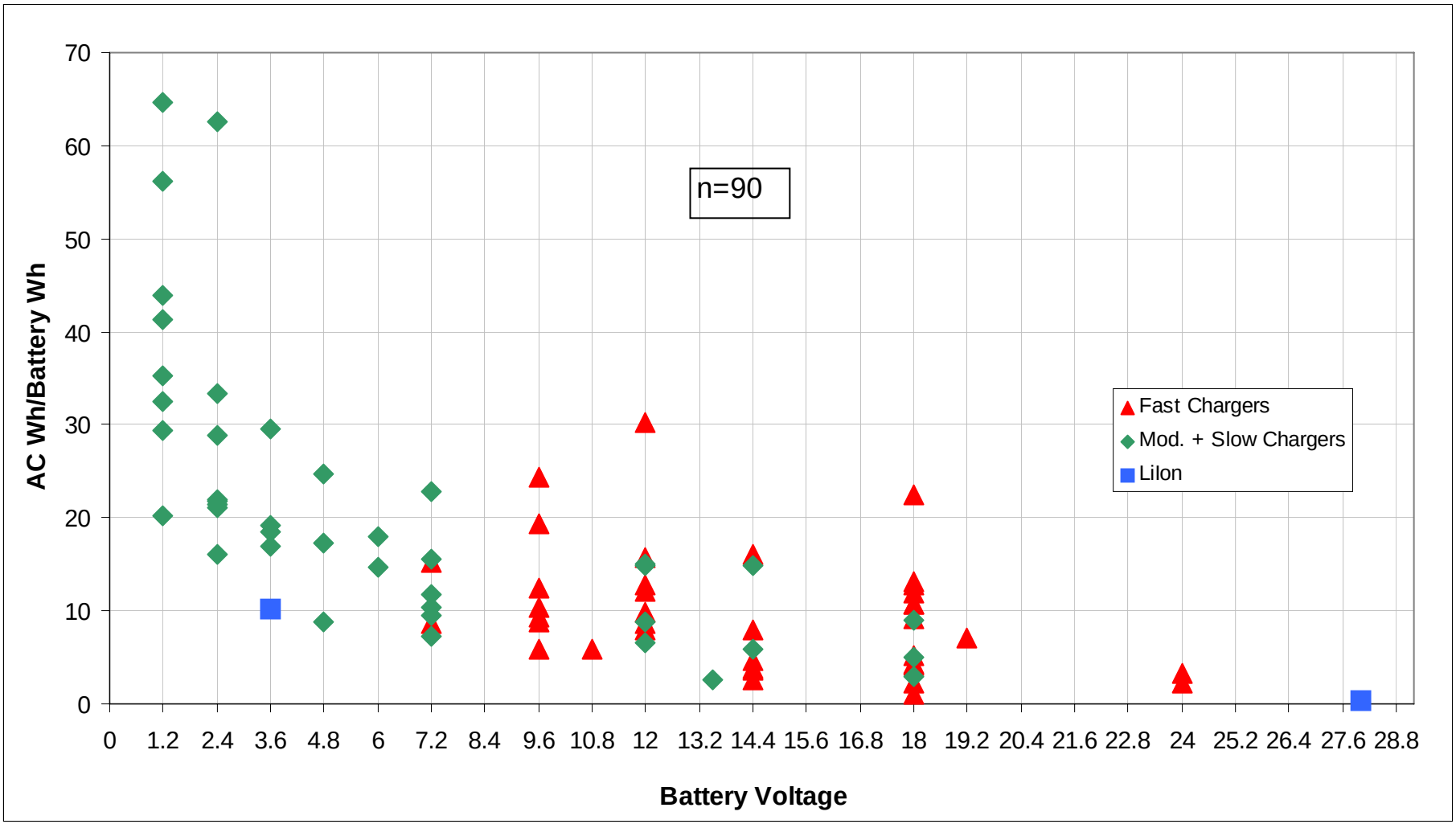
Normalize by Battery Energy, Battery Voltage

- Energy use a function of battery energy
  - Charging = $(V_{battery} * Ah_{battery})*k$
  - Battery Maintenance = $V_{battery}$ *(C/~30)*time for NmH, NiCad
- Data show inverse relationship with battery voltage

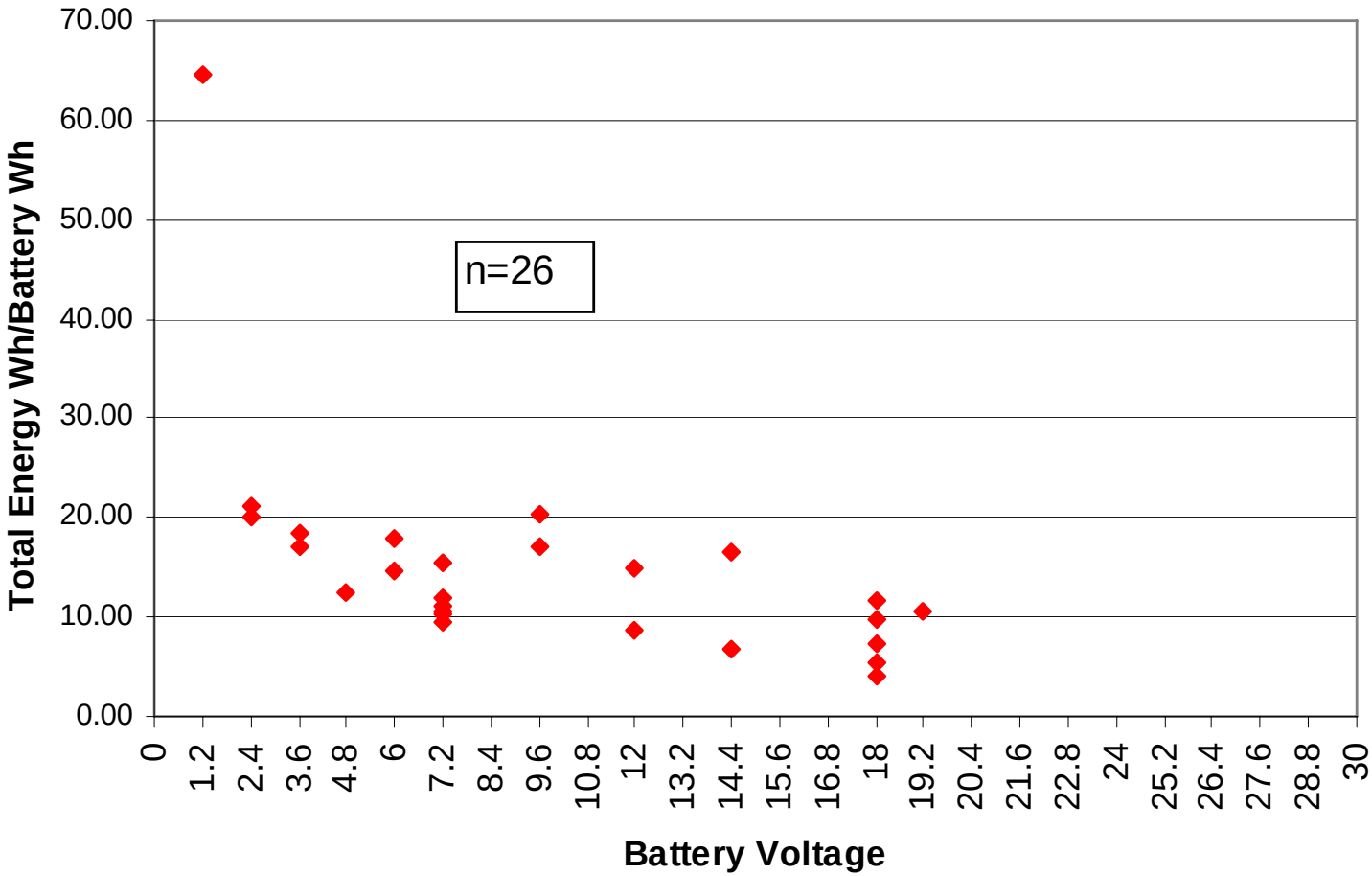
Product Measurement and Data Collection



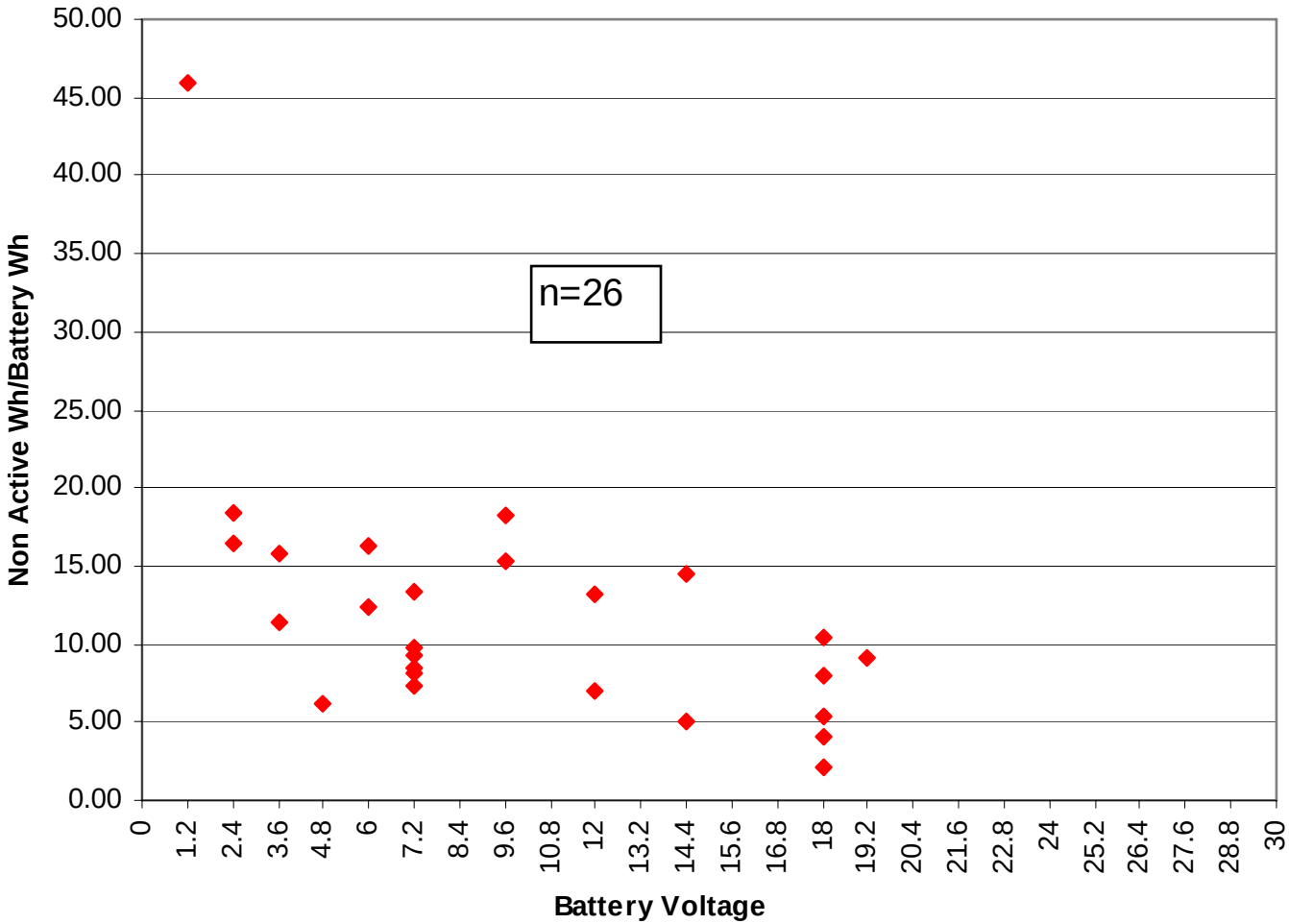
48-hour “non-active” Energy Use: 90 Products



Total Energy for 26 Products



Non-Active Energy for 26 Products



Observations

- Normalizing by battery energy looks viable
- Normalized energy use inversely proportional to battery voltage
- Large variation in energy use = savings opportunity
- Low voltage products have relatively high energy use, single cell (1.2 volt) have highest use
- “Fast” chargers have lower energy use, but overlap with “slow” chargers: 1 or 2 specification categories?

  *Fast ~<3.5 hours

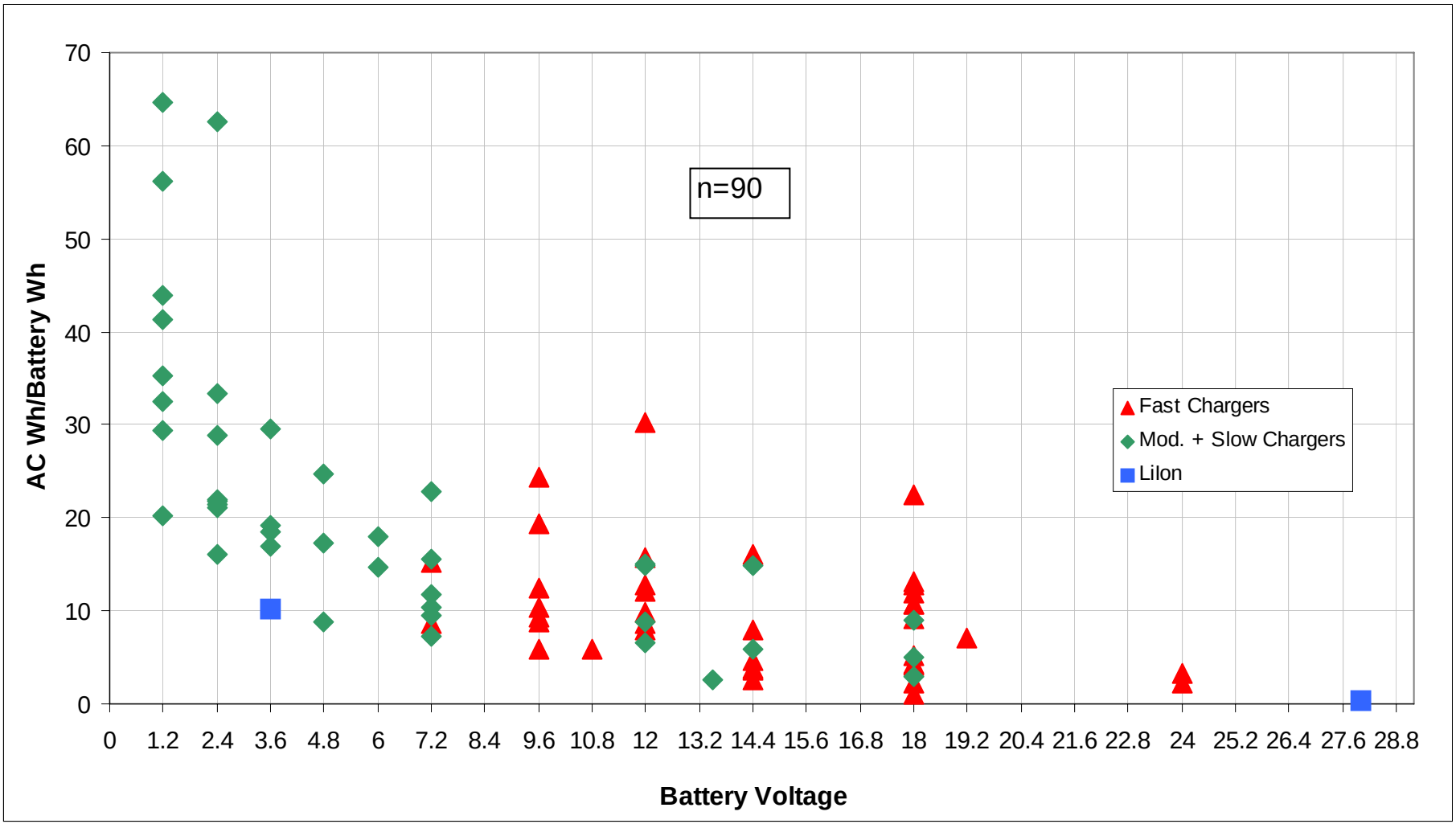
Specification Options

Guiding Principles for ENERGY STAR Specification Development

- Significant energy savings potential
- Purchasers will recover their investment within a reasonable time period
- Product performance can be maintained or enhanced
- Efficiency can be achieved with multiple technology options that are diffuse in the market
- Product energy consumption & performance can be measured and verified with testing
- Labeling would differentiate products (recognize approx. top 25%) & be visible to purchasers

www.energystar.gov/productdevelopment

48-hour Energy Use: 90 Products



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  *Fast ~<3.5 hours

Specification Construction

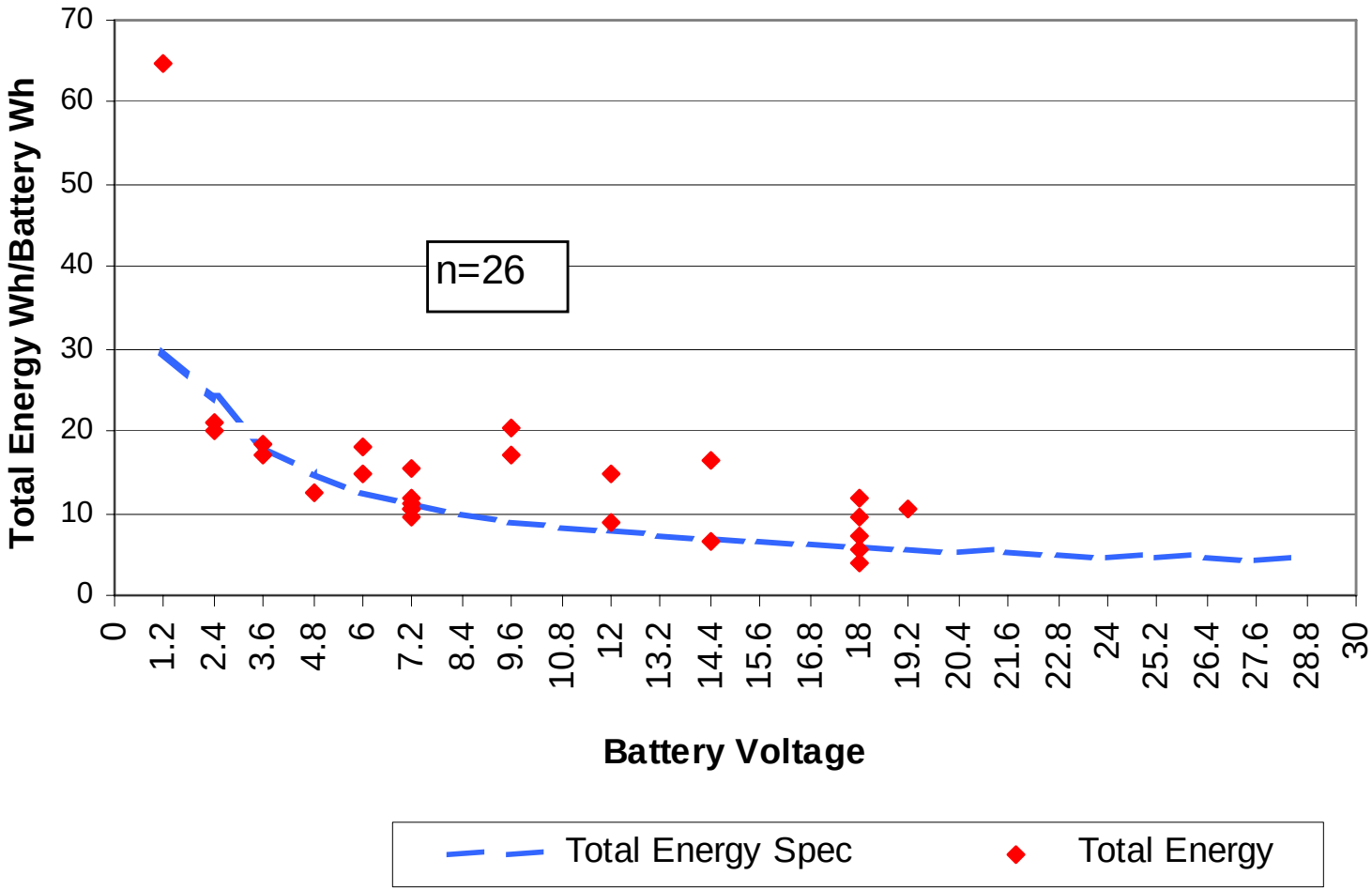
- Option 1: Total energy
  - Captures all energy use
  - Sensitive to use scenario
    - Could require many use scenarios
    - Could invite disagreement
    - Difficult to compare products across categories
  - More sensitive to small errors in measurement of battery capacity

Specification Construction

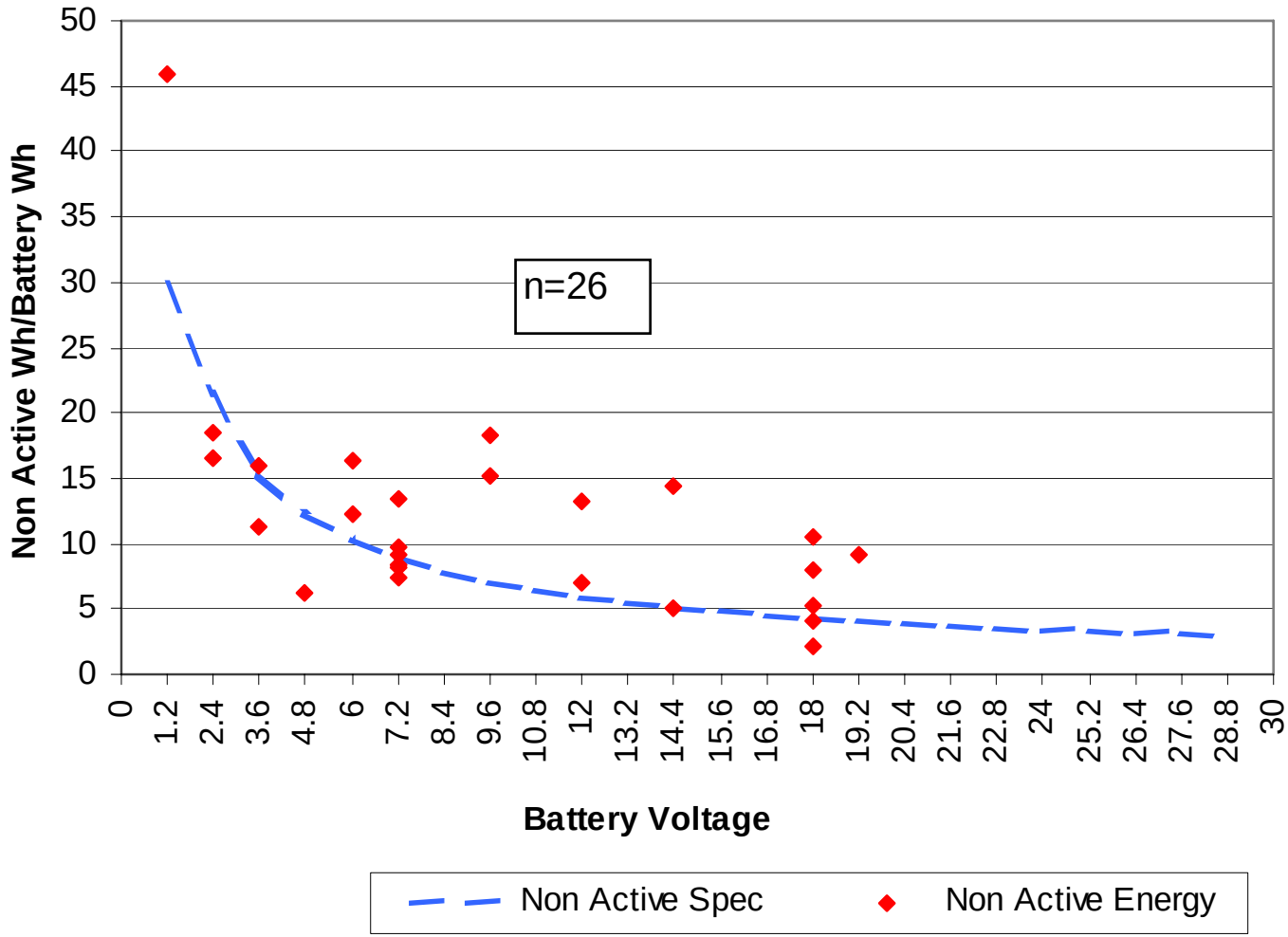
Option 2: Maintenance and standby only

- Focuses on lowest efficiency mode, largest savings
  - Battery maintenance important, charging energy usually less important
  - Standby energy use of varying importance
- Robust, simple test
- Still focuses on top 25 percent of market
- Achieves similar savings to Option 1
- Avoids difficulties of Option 1
- May miss some additional saving opportunity for some products?

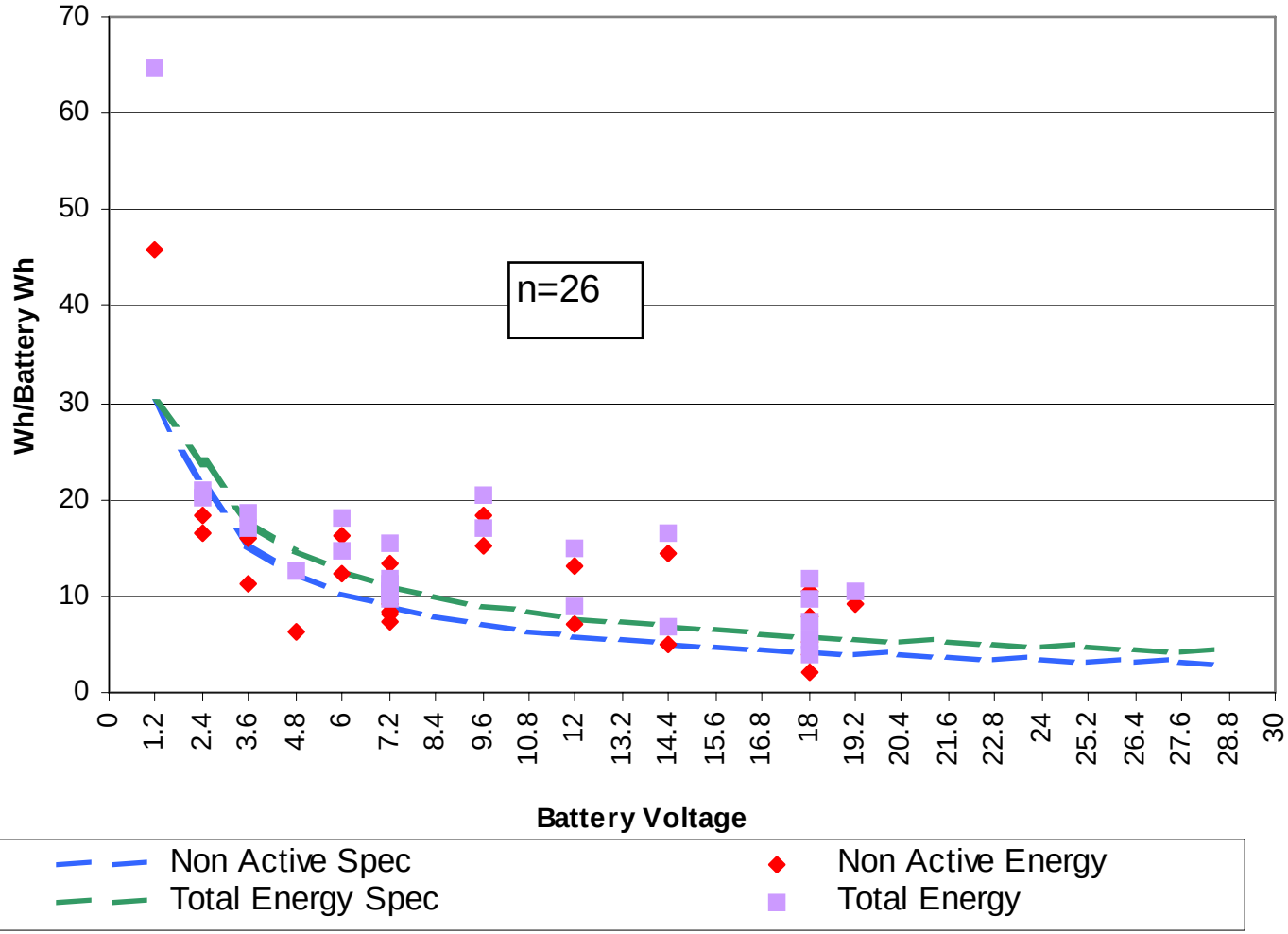
Sample Specification: Total Energy



Sample Specification: Non-Active Energy



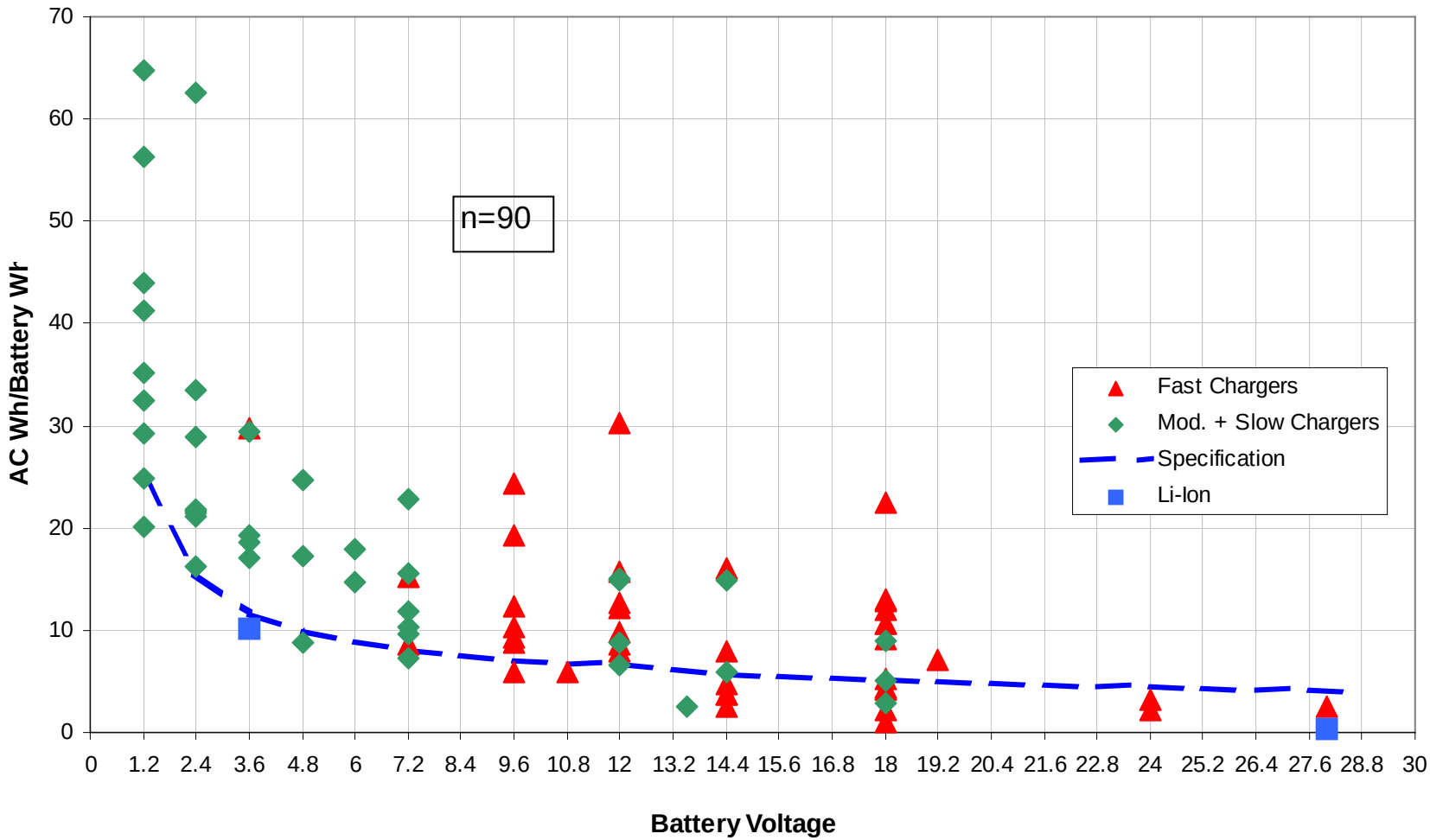
Total Energy and Non-Active Energy Overlap



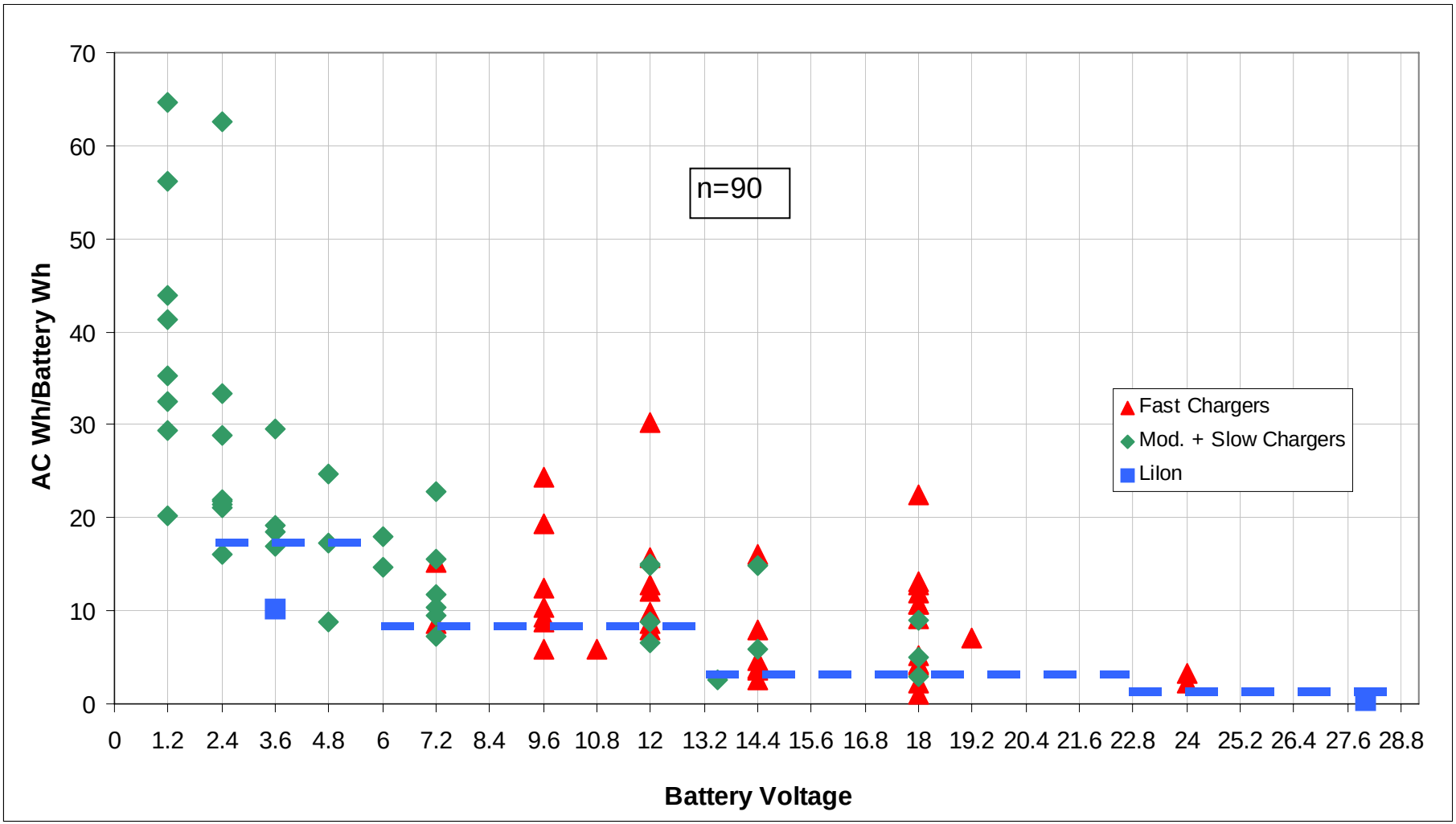
Total Energy and Non-Active Observations

- Approximately equal savings opportunities for products tested (< 3% Difference)
- Same products meet both specification options
- In either case, a well designed specification can achieve significant energy savings

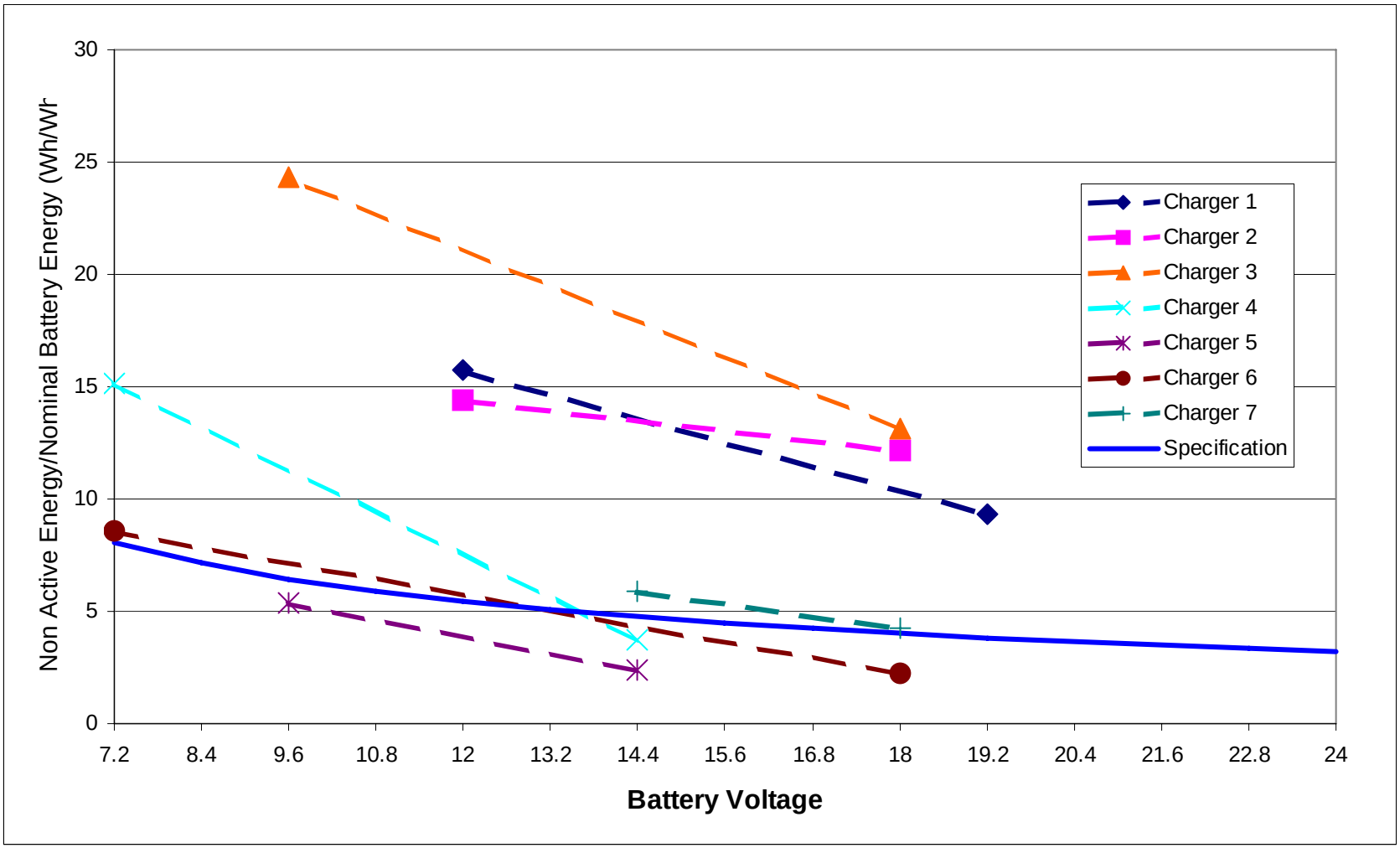
Possible Single Category: Curve



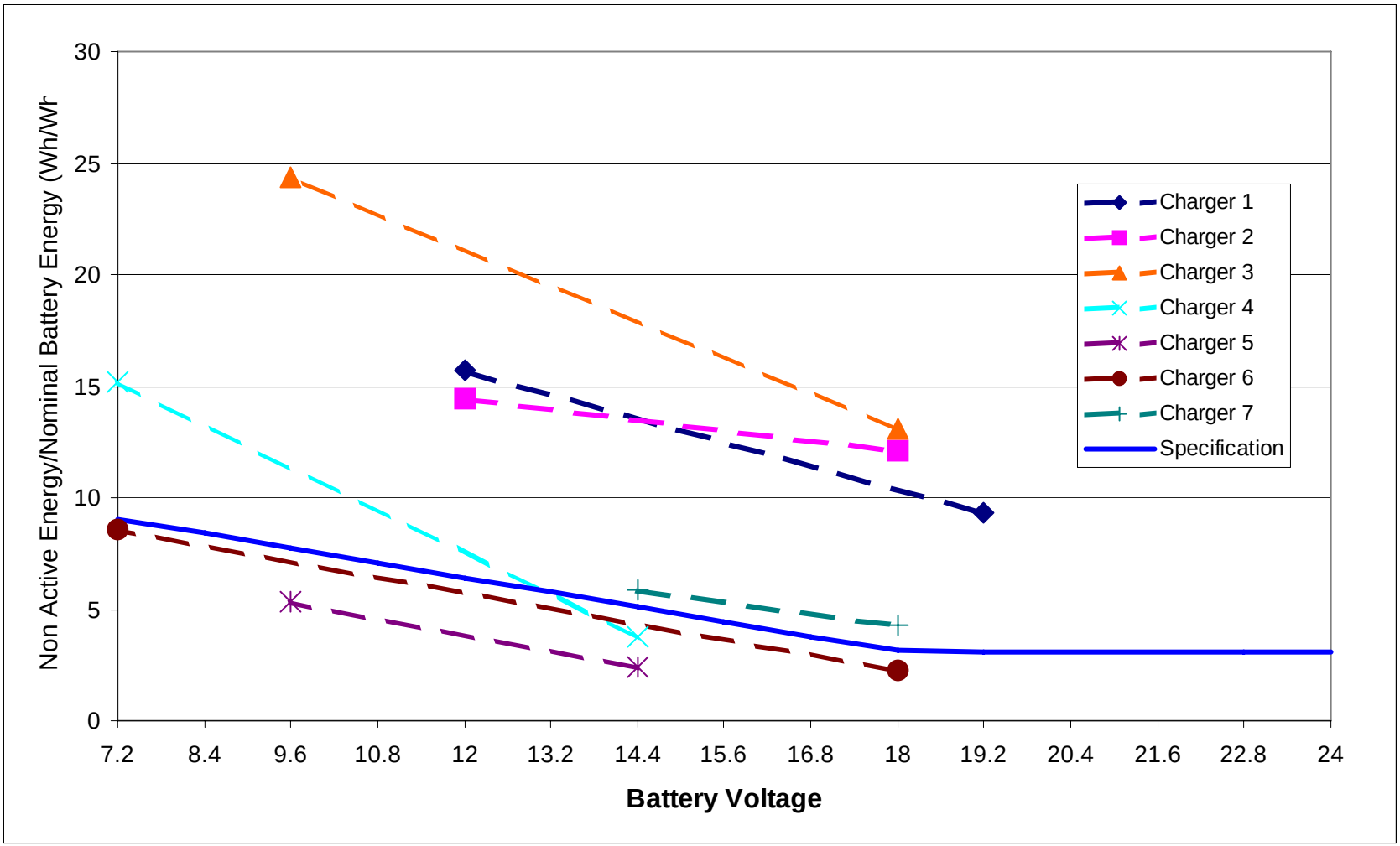
Possible Single Category: Steps



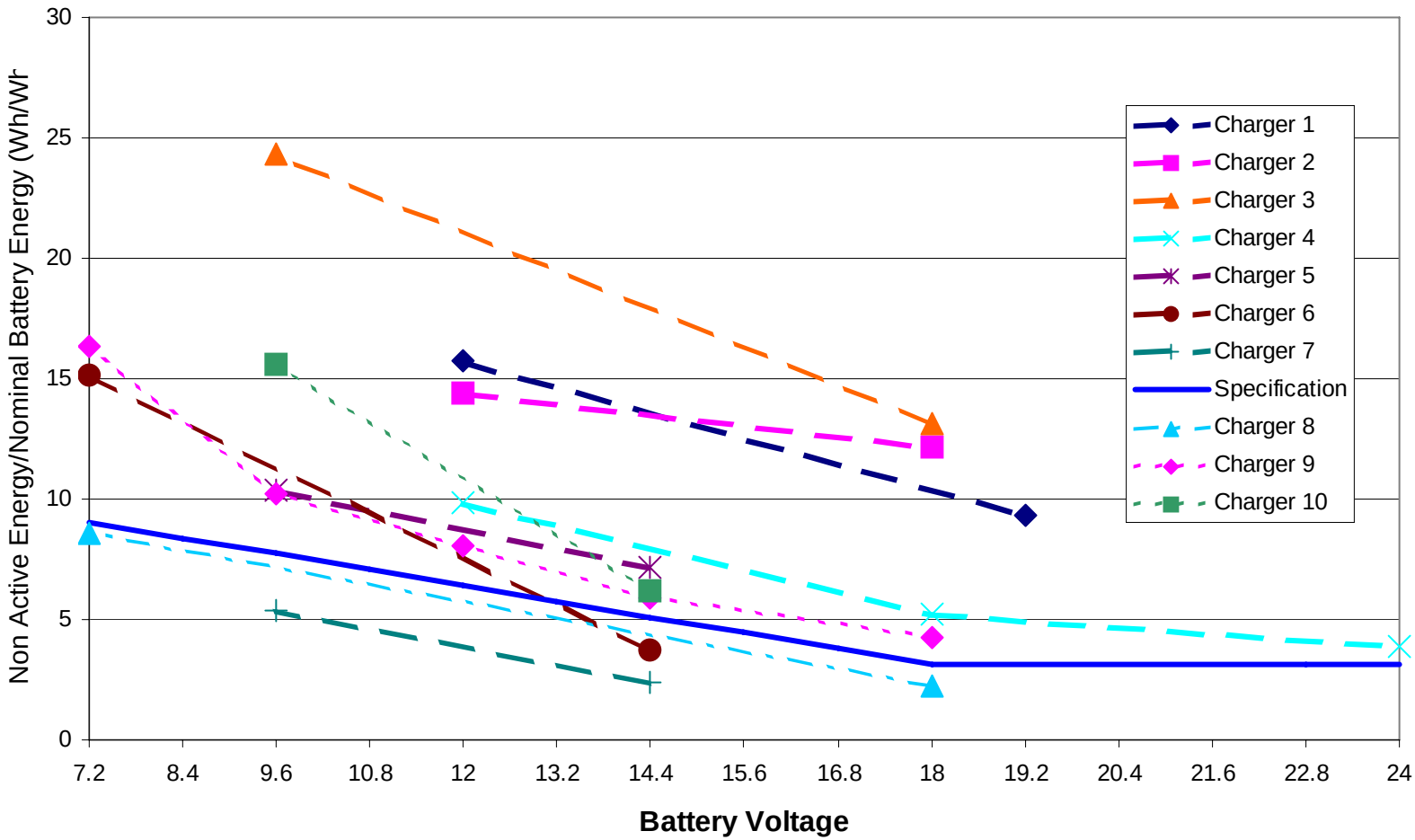
Single Curve: May Need to Adjust for Multi-voltage Fast Chargers



Fast Charger Specification: Adjusted Curve



Fast Charger Specification: Extra Slide

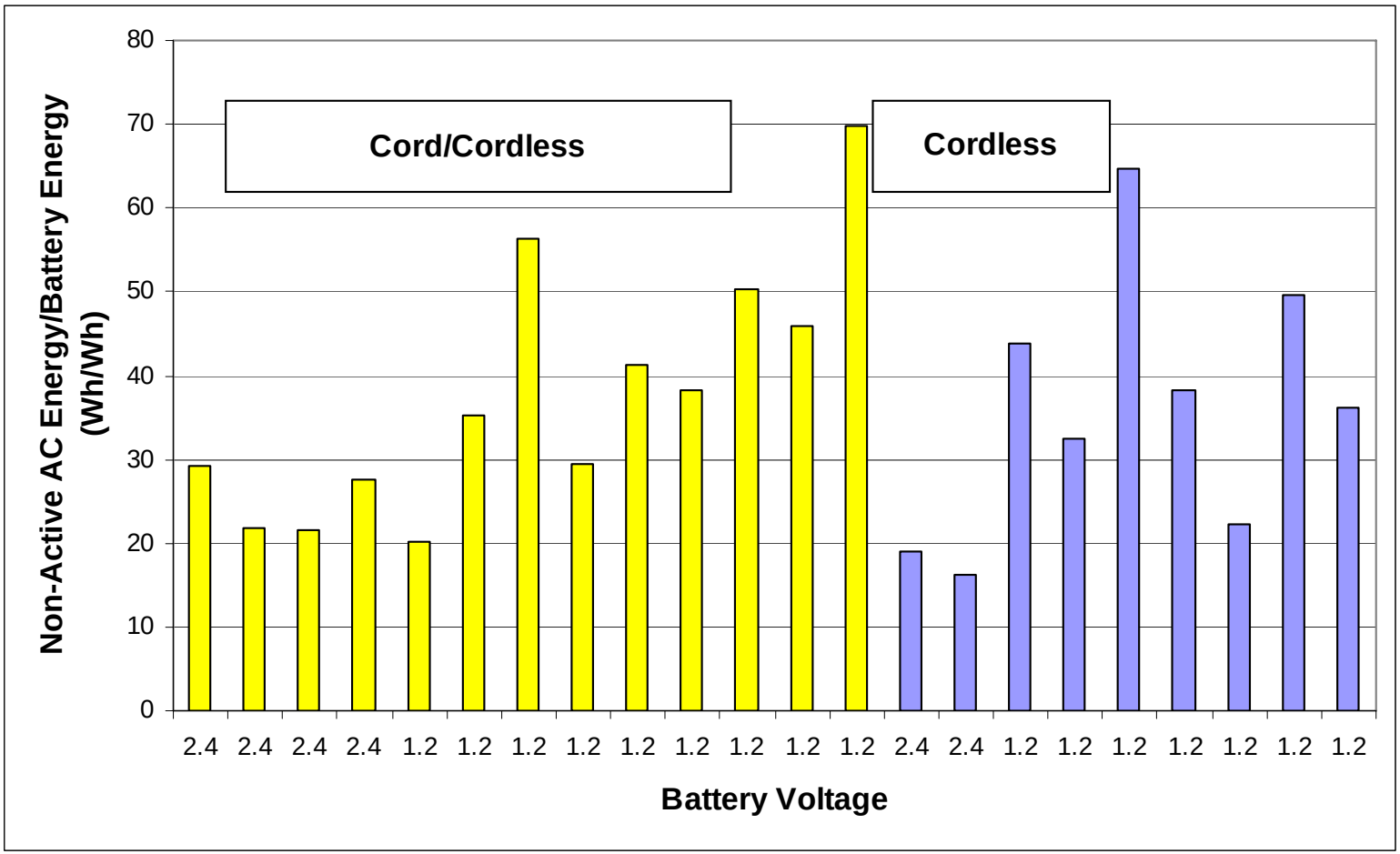


Potential Issues

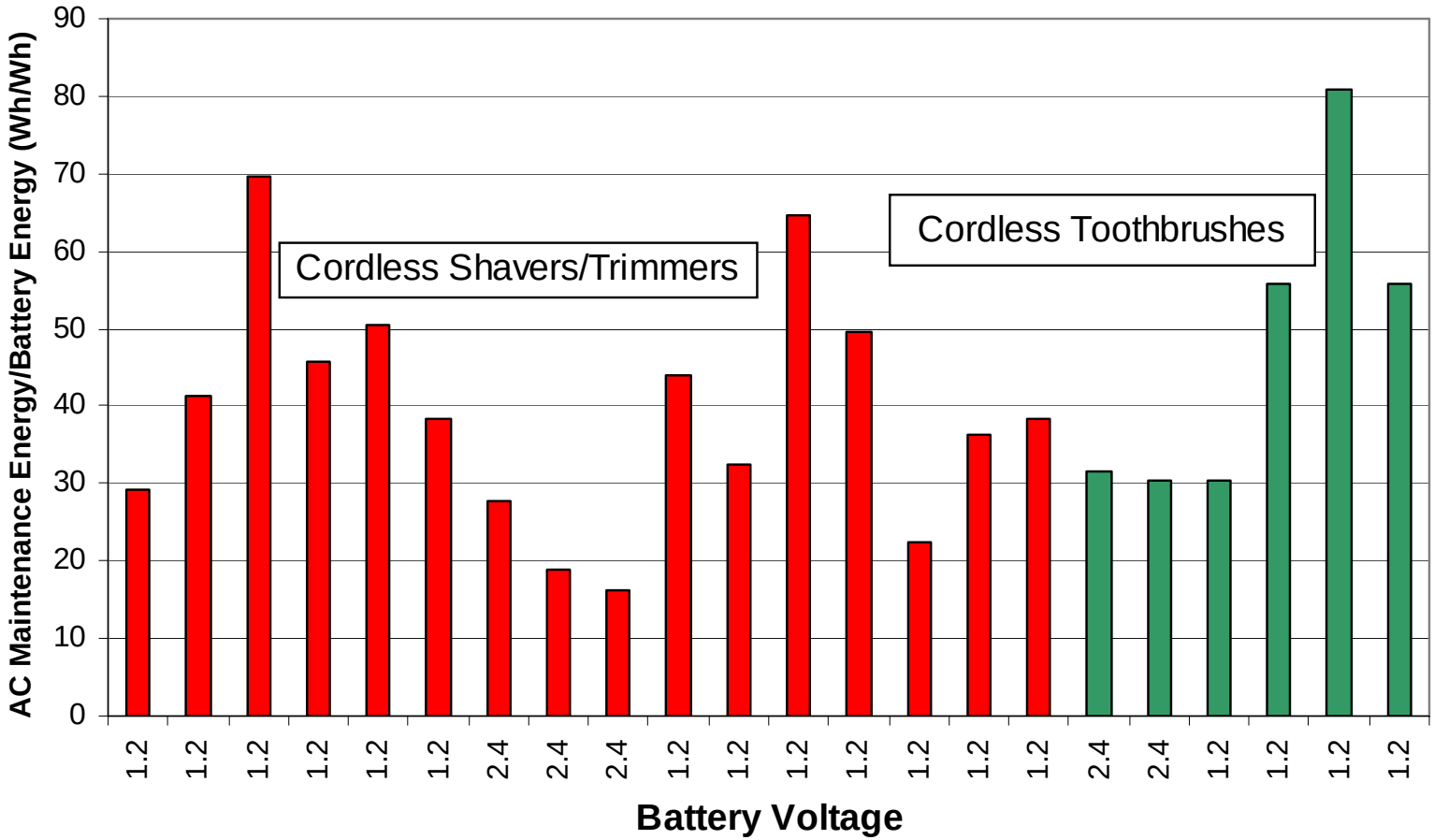
Open Questions

- **Single cell (1.2 V) products** use 40 or more times the capacity of the battery each 48 hours—how to address?
- Should a specification include all energy used or **only battery maintenance and standby energy used**?
- Should **inductive coupled** devices be treated differently?
- Efficient diode, rectifier opportunities
- Do **cord/cordless** products use more energy than cordless devices?

Cord/ Cordless v. Cordless



Energy Use: by voltage, product



Discussion of Other Key Elements of Specification

Battery Charger Definitions
Test Methodology
Effective Date

Scope of the Specification

- Covers products excluded from EPS specification
  - motor driven battery charged products and other battery charged products without separable EPSs
- May require fine tuning to include additional product types

Definitions in Progress

Device Types

- Battery Operated
- Cord / Cordless
- Inductive Coupling

Battery Packs

- Rechargeable
- Detachable / Integrated

Test / Measurement Terminology

- Battery Chemistry
- Nominal Voltage
- Battery Capacity
- Rated Capacity
- Battery Energy
- Accumulated Energy
- Energy Ratio

Proposed Battery Charger Definition

Battery Charger – A device intended to replenish the charge in a rechargeable battery. The battery charger will connect to the mains at the power input and connect to the battery at the output. The charger may be comprised of more than one enclosure and may or may not be all or partially contained in the end-product.

Definition intended for:

- Chargers designed for rechargeable battery chemistries (e.g., lead acid, NiMh, NiCad, Li-Ion)
- Batteries with voltages < 42 volts
- Able to be tested at 115 VAC and/or 230 VAC
- Maximum input power between 1 watt and 150 watts

Other Definitions

Important operating modes:

Active Mode – Mode of operation where the battery is taking on the main charge.

Standby (No-Load) Mode – Mode of operation where no battery is present in the charger, but the charger is still plugged in and drawing power.

Battery Maintenance Mode – Mode of operation where the battery is still connected to the charger, but is fully charged. Charger may perform functions such as cell equalization, and cell discharge balance while in this mode.

Other Definitions (2)

Important energy terminology:

Accumulated Energy (E_a) - The energy, reported in watt-hours (Wh), consumed by the battery charger in a particular mode of operation or in several modes of operation over a defined period.

Battery Energy (E_b) – The product of the rated battery capacity (C) and the nominal battery voltage (V_b), expressed in Wh. $E_b = C \cdot V_b$.

Energy Ratio (ER) – The ratio of the accumulated energy (E_a) divided by the battery energy (E_b). $ER = E_a / E_b$.

Test Methodology

- Must develop **a well-defined test procedure**
  - Generates repeatable results and allows for objective comparisons among products

- Final test method will be dependent on **which specification approach is chosen**
  - Total energy vs. particular modes of operation
  - Active vs. Non-active

Test Procedure: Preparation

1. Record essential information about the product
   - **Make and model number**
   - **Battery chemistry**
   - **Battery capacity**
   - **Nominal voltage of pack**
   - **Coupling system used**

2. Completely drain battery pack prior to testing
   - **Discharge detachable battery packs at < 2C**
   - **Discharge integrated battery packs by operating the product until it becomes incapable of functioning**

3. Disconnect any applicable subsystems (primarily in integrated battery products) to ensure no parasitic power loss during testing

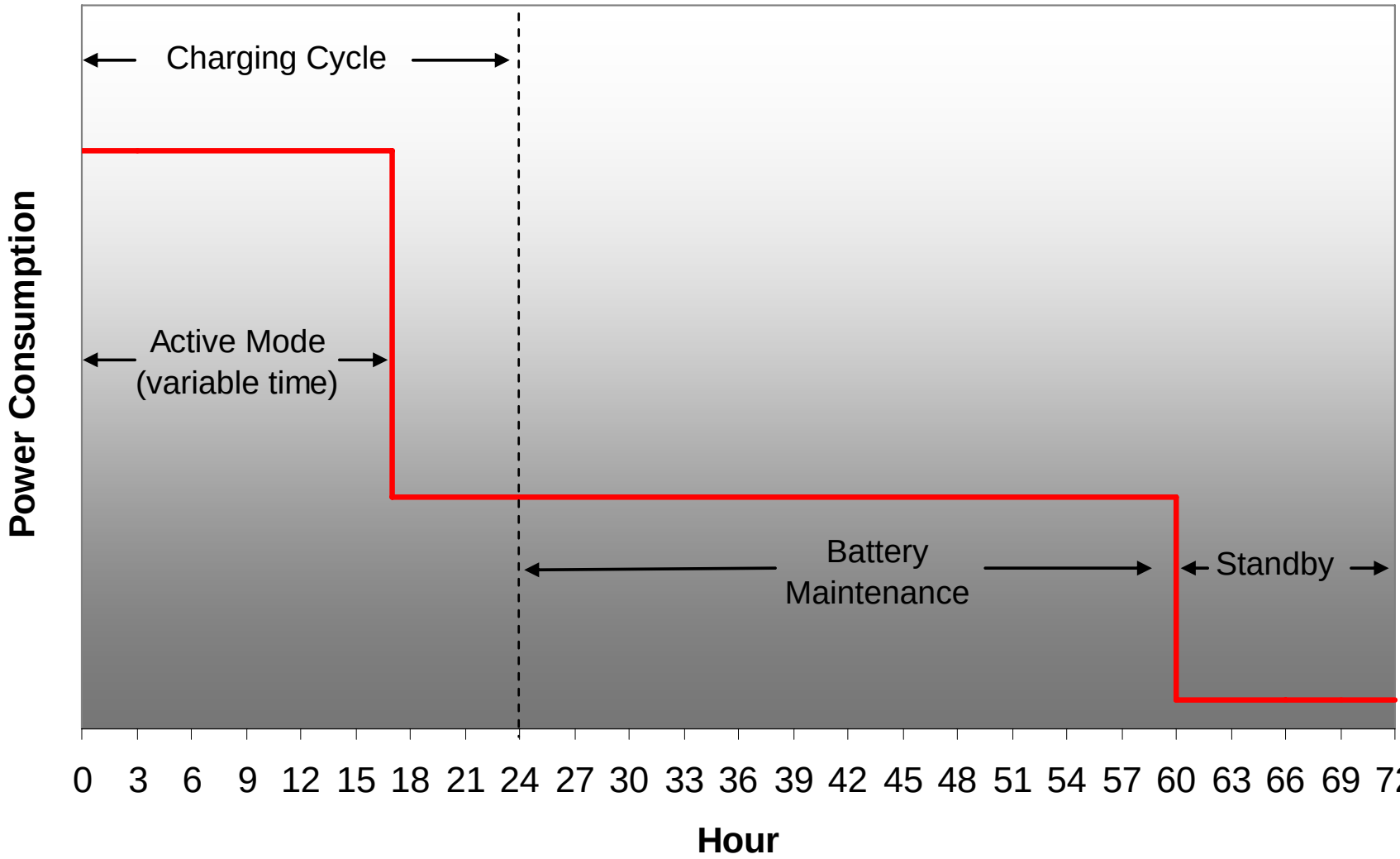
Test Procedure: Measurements

3. Connect battery charger and leave charging for 24 hrs
   - **Collect accumulated energy (E_a) for active mode if required**
   - **Shorter periods may be used if this would not effect the test results**

4. After the 24 hour period has passed, measure accumulated energy (E_a) for the next 48 hours
   - **36 hours of battery maintenance (fully charged battery connected to charger)**
   - **12 hours of standby (battery / device disconnected from charger)**

5. Use battery energy (E_b) to compute the energy ratio (ER) for accumulated energy values collected
   - **This normalizes energy consumption by capacity**

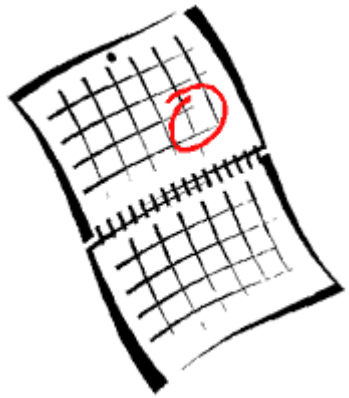
Test Procedure: Test Cycle



Effective Date

Effective Date

The date that manufacturers may begin to qualify and promote products as ENERGY STAR will be defined as the effective date of the specification.



The proposed ENERGY STAR battery charger effective date is January 1, 2006.

Battery Charger Specification Timeline & Next Steps

Tentative Schedule

- **Mid July**
  - EPA creates and releases Draft 1 of the Battery Charger specification and Test Method for stakeholder comment. EPA begins to plan marketing/communications efforts for battery chargers.
- **August**
  - EPA reviews stakeholder comments, conducts additional testing where needed, and analyzes results, options, etc. EPA will post stakeholder comments on the ENERGY STAR Web site, when agreed to by author.
- **September**
  - EPA addresses feedback and releases the Final Draft for comment. EPA hosts Web cast to summarize key changes and rationale.
- **October**
  - EPA reviews latest set of comments and discusses issues with stakeholders as needed.
- **November**
  - EPA releases Final specification.
- **December**
  - EPA signs up new partners and discusses 2006 marketing plans.

Partnering with ENERGY STAR

- **Partnership Agreement**: Standardized format that captures the fundamental program requirements of ENERGY STAR

- **Partner Commitments** include:
  - Meet Eligibility Criteria (i.e., energy-efficiency specification)
  - Abide by ENERGY STAR Identity Guidelines (https://www.energystar.gov/index.cfm?c=logos.pt_guidelines)
  - Qualify one product within three months of joining ENERGY STAR and then update product lists regularly
  - Use clear and consistent ENERGY STAR labeling on product packaging, Internet site, etc.
  - Provide unit shipment data on an annual basis to EPA

Partnering with ENERGY STAR (cont.)

- No new paperwork for already **existing EPS partners**
- Appliance and power tool manufacturers join ENERGY STAR by signing a **Partnership Agreement** (PA)
  - To request a PA, please contact Brooke Taylor, ICF Consulting, btaylor@icfconsulting.com

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